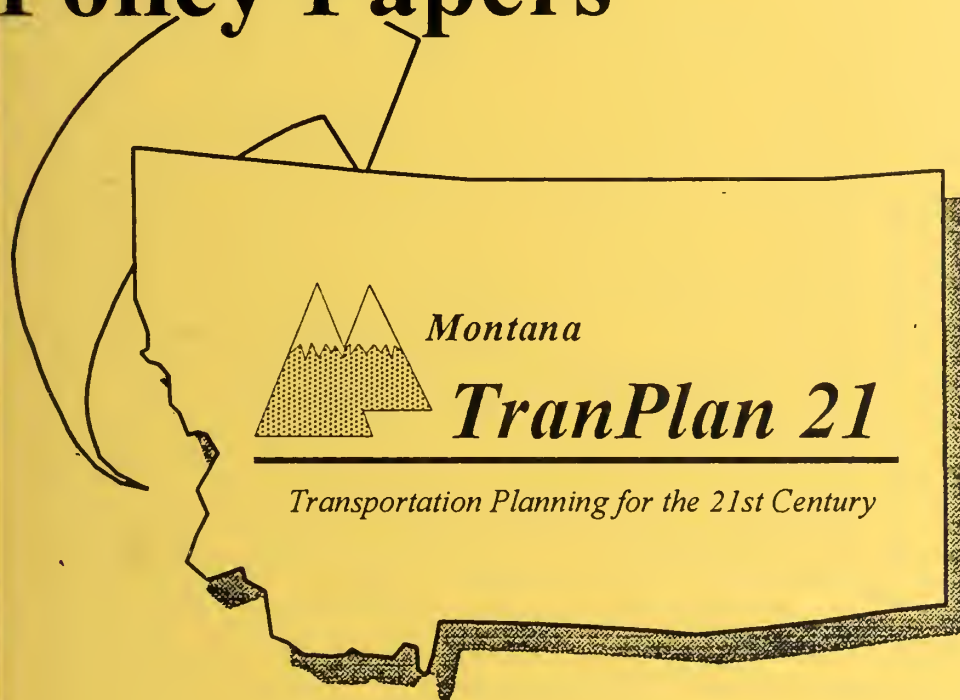


## Volume III

# TranPlan 21 Policy Papers



STATE DOCUMENTS COLLECTION

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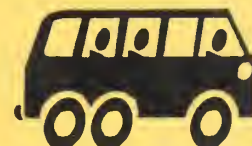
**Draft Plan**

Montana Department of Transportation  
December 21, 1994

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must also maintain a reserve fund adequate to meet federal advanced funding requirements.

**d. Secondary system needs**

Montana's ability to finance preservation of the state's secondary highways is a key concern. In the 1980s, the MDT issued bonds to finance system preservation. Bond proceeds have now been exhausted, and revenues from this source are no longer available. While Montana continues to fund preservation of secondary highways out of current revenues, the level of funding is now only half of peak funding level of past years, while system needs remain fairly constant.

**e. Local transportation financing**

The twenty year life of TranPlan 21 will see many of Montana's local governments face a need for increased transportation revenues. By law, Montana's cities and counties receive a share of the state's fuel tax collections for use in meeting their transportation needs. In fiscal year 1995, cities and counties received \$16.8 million in fuel tax revenues.

Cities and counties also draw upon other revenues sources in meeting their transportation needs, including property taxes and motor vehicle registration fees. Under state law, counties have the option of levying a gas tax of up to two cents per gallon to raise revenues for roadway uses. Currently, no county has chosen to enact an optional gas tax. However, the option is available and counties could make use of the gas tax option in seeking to meet their future roadway revenue needs.

## **D. REFERENCES**

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### 3. Key Finance Constraints

The key finance constraints that will affect the implementation of TranPlan 21 over the next twenty years are discussed in turn.

#### a. Revenue shortfall

The most pressing constraint is the need to generate revenues sufficient to meet improvement and preservation needs on the state's highway system. Montana cannot rely upon federal assistance alone to meet these needs. Therefore, if Montana is to continue to address highway needs at today's levels, it will have to generate additional revenues on its own over the next twenty years.

#### b. Uncertainty of future Federal funding

Montana relies heavily upon federal revenues to fund its highway improvement program. Federal revenues are projected to provide three-quarters of Montana's entire construction spending on state highway in 1995. However, continued funding at current levels is uncertain. This stems from the possibility that the Congress, in seeking to address tight federal budgets, may decide to divert federal gas tax revenues that finance federal highway programs to other uses. This could diminish federal transportation payments to Montana and other states. Another source of uncertainty stems from possible increases in the matching requirements that accompany federal transportation assistance.

The uncertainty surrounding federal transportation financing calls for Montana to develop contingency strategies for raising new revenues and ensuring that available revenues are used most efficiently so that if significant changes do materialize, Montana is positioned to minimize any adverse consequences.

#### c. Federal match reserve requirements

Notwithstanding the uncertainty surrounding federal transportation revenues, Montana must also act to ensure that it can continue to meet the matching requirements that accompany federal transportation assistance. Federal transportation aid programs operate on a reimbursement basis. Montana must fund construction projects it undertakes with federal assistance first and then wait reimbursement from the federal government. This means that Montana must not only ensure that it has sufficient revenues to meet the costs of the transportation projects it undertakes, but

Two frequently mentioned approaches to congestion pricing involve assessing toll charges upon users of congested roadway segments, and assessing parking charges. In either case, care must be taken to ensure that congestion pricing does not adversely affect local competitive advantage to the point where investment is displaced elsewhere. This can serve to increase and extend congestion to formerly uncontested areas.

While the possibility of adopting congestion pricing in Montana cannot be ruled out, as a practical matter Montana appear to be ill suited for congestion pricing. Despite expressions of interest in doing so, no locality or state in America has yet to actually enact congestion pricing. A principal reason is that there is a great deal of public opposition to congestion pricing.

Most importantly, there are few if any areas in Montana that appear likely candidates for congestion pricing. Congestion pricing aims to address transportation problems in heavily congested urban areas.

**g. Public-Private Partnerships**

Private financing of highway and other public transportation improvements has a long history in America. Private entrepreneurs financed many large scale roadway infrastructure projects during the nation's early years. The past century has seen a diminution in private participation in roadway and transportation infrastructure development, in large part due to the role the federal government assumed in constructing transportation infrastructure under the interstate highways program. However, tight public transportation budgets have generated renewed interest in using public-private partnerships to develop and finance new transportation infrastructure. Interest in private sector involvement in transportation infrastructure development has been encouraged by ISTEA, which allows federal transportation funds to be used in conjunction with private equity for transportation program development.

When used for transportation infrastructure development, public-private partnerships require that a toll charge or other mechanism to collect revenues from transportation facility users for the purpose of retiring debt incurred for project development and to provide private business a measured profit from its participation. For this reason, public-private partnerships share many commonalities with toll roads, and are probably unsuited to Montana.

**Exhibit V-14**  
**Activities on Federal-Aid Facilities Eligible for**  
**Toll Financing and Public/Partnerships**

Activities on Federal-aid Facilities Eligible for Toll Financing and Public-Private Partnerships	Federal-aid Percent Share			
	Interstate		Non-Interstate	
	Highways	Bridges/ Tunnels	Highways	Bridges/ Tunnels
Initial construction of toll highways, bridges, tunnels, and approaches to these facilities	NA	NA	50	80
Reconstruction of toll highways, bridges, tunnels, or approaches	50	80	50	80
Resurfacing, restoring, and rehabilitating of toll highways, bridges, tunnels, or approaches	50			
Reconstruction or replacement of free (non-Interstate) highway or toll-free bridges or tunnels on or off the Interstate together with conversion to toll facilities	NA	80	50	80
Preliminary feasibility studies of the aforementioned toll construction activities	50			

Congestion pricing has two aims. One is to alleviate congestion. By charging for roadway use during congested periods, congestion pricing aims to defer trips by travellers who do not value peak-hour travel highly enough to pay the charge. Ideally, roadways users who do not value trips highly enough to pay a charge would either eliminate peak hour trips outright, shift the trips to less congested periods of the day, or substitute public transit for trips they would otherwise make by automobile, and thus reduce roadway congestion and delays. The other aim of congestion pricing is to raise revenues that could be invested in transportation improvements, or other programs aimed at alleviating congestion.

**d. Statewide motor vehicle registration or vehicle licensing fees**

Currently, counties in Montana generate revenues for roadway improvements by assessing licensing fees upon county resident owned vehicles. However, there is no state licensing or registration fee or tax at the current time. Montana could seek to raise revenues for roadway improvement and preservation by establishing statewide motor vehicle registration or vehicle license fees.

**e. Toll Roads**

Toll charges have long been used to finance large scale highway, bridge, and tunnel projects. Typically, toll roads involve commensurate use of bonded debt. Tolls are usually set at a level necessary to generate revenues needed to pay off bonds sold to provide initial roadway construction. On occasion, tolls have been maintained in place even after bonded debt has been retired, with derived revenues being used for wider transportation system improvement and maintenance. Contemporary thinking about tolls would focus more upon setting tolls levels at a cost necessary not only to pay off initial construction costs but to also maintain transportation facilities over their life-cycle.

ISTEA stipulates the types of toll-facility users for which federal transportation funds may be used. These uses are identified in Exhibit V-14. However, as a practical matter, Montana is probably an unlikely candidate for toll roads. The magnitude of the revenues needed for cost recovery for most toll facilities means that toll roads are only feasible for heavily travelled roadways. Few roadways in Montana appear likely to generate traffic volumes sufficient to meet toll road revenue recovery needs.

**f. Congestion Pricing**

Congestion pricing involves the use of toll charges during periods when demand for roads exceeds capacity. On very heavily congested roadways, this could effectively amount to continuous charging. On roadways that are only congested during peak periods, the charges could be levied only intermittently.



**a. Existing Fuel Taxes and Gross Vehicle Weight Fees**

The traditional approach to meeting increased need for transportation revenues in Montana has been to increase fuel taxes. This appears the most likely approach available to Montana for raising additional revenues for meeting the state's highway needs in the future.

Montana could also seek to raise revenues for highway improvement and preservation by raising the Gross Vehicle Weight fees it levies upon motor vehicle carriers. Any increase would have to be consistent with the principal of cost responsibility.

**b. Fuel Tax Indexing**

Indexing fuel tax rates to rise with inflation would help to ensure that revenues do not decline in real terms due to inflation. Fuel taxes could be indexed by being set at a percentage of fuel prices, or being linked to changes in the consumer price index, or the construction price index.

**c. Bonded Debt**

Bond debt does not generate new revenues but can be used to manage cash flow and address the timing needs for large infrastructure projects. Montana has used bonds for transportation finance in the past. In the 1980s, the MDT issued bonds to generate revenues for use in funding the Reconstruction Trust Fund.

Any decision to use bond debt to raise additional revenue would be contingent upon either a refunding or repayment of existing debt or authorization from the legislature to increase the MDT's debt limit. A key issue in any decision on the future use of bonded debt is the degree to which revenues are projected to be sufficient to allow the MDT to meet its obligations to pay off debt principal and interest. Current projections indicate that the MDT will incur a cost of about \$16 million per annum through 2006 in paying off the interest and principal on its existing bond obligations.



## **C. FUTURE TRANSPORTATION FUNDING IN MONTANA**

### **1. Future revenues**

Revenues are projected to be largely static throughout the Plan's life with a slight downward slope. In fiscal year 1995, the MDT will have a projected \$305.5 million available for the Highway Program. This figure will trail off slowly, dropping to \$303.3 million in fiscal year 2014.

Under the matching requirements that accompany federal highway assistance, the MDT must fund construction costs prior to federal reimbursement. The MDT must retain sufficient cash flow to meet these advanced funding requirements. The MDT must retain a reserve sufficient to meet its advance funding needs. This means that not all funds that the MDT had access to can be used to meet current needs.

This conclusion is based upon a MDT cash flow projection dated October 5, 1994. Adjustments have been made to remove funds earmarked for Architecture and Engineering, local government, and the Montana Department of Justice, because these earmarked revenues will not be available to the MDT for general highway uses.

Federal revenues are assumed to be a constant at approximately \$155 million annually throughout the life of the Plan. For this level of federal funding to fully materialize, the Congress would have to fully fund ISTEA, something it has failed to do in the past. Federal budgets are also anticipated to be tight in the coming decade. For these reasons, full congressional funding of ISTEA is unlikely.

In practice, inflation is likely to erode the purchasing power of the dollar with each successive year. Given that revenues assume full funding of ISTEA, which is unlikely, and do not account for any erosion in purchasing power that inflation is likely to cause, the projections presented should be thought of as optimistic. Actual revenues available to Montana could well be lower than projected.

### **2. Transportation finance alternatives**

To preserve the transportation system and address needs arising from growth, Montana will need to increase funding levels over the next twenty years. The transportation finance alternatives available to close the gap between projected revenues and anticipated needs for roadway improvement and maintenance over the next twenty years are outlined. They all would require legislative authorization.

With an equity ratio of 0.96, basic vehicles are slightly underpaying their share of highway costs. In contrast, intermediate and heavy vehicles, with equity ratios of 1.11 and 1.07, are slightly overpaying the costs they impose on Montana's highway system. While these ratios do not reflect exact equity in the sharing of user costs, these figures are roughly consistent with the results of cost allocation studies conducted in other states.

**Exhibit IV-11**  
**Highway User Equity Ratios**  
**Montana and Other States**

Study	Equity Ratio		
	Basic Vehicles	Intermediate Vehicles	Heavy Vehicles
Montana (1992)	0.96	1.11	1.07
Maine (1989)	0.99	0.96	1.09
Vermont (1991)	1.02	1.11	0.92
Wyoming (1981)	1.00	1.26	1.20
Nevada (1988)	1.00	1.00	
Oregon (1991)	0.94	1.11	

Source: Stephens, Jerry (1992): Cost Allocation Study for the Montana State Highway System

**Exhibit V-9**  
**Percent of Highway Revenue by Source**  
**Montana and Other States**

State	Percentage of Revenue by Source						
	User Specific Revenues				Total User Specific Revenue,	*Non User Specific Revenue	Total
	Fuel Taxes	Motor Carrier Fees	Regis- tration Fees	Other User Specific			
Montana (1992)	68	14	0	5	87	13	100
Nevada (1986)	55	16	17	9	97	3	100
Wyoming (1980)	19	28	11	0	58	42	100
California (1987)	38	20	38	0	96	4	100
Maine (1989)	68	**	18	8	94	6	100
Oregon (1986)	48	42	10	0	100	0	100

Source: Stephens, Jerry (1992): Financing the Montana State Highway System.

\*In Montana, includes new vehicle sales tax. In other states, includes highway permits, drivers licenses, and turnpike tolls.

\*\*Weight related component of Maine motor carrier fee included in registration fees.

Exhibit V-10 presents equity ratios for three broad categories of users of Montana's highways. These categories are as follows:

- Basic vehicles: Automobiles, motorcycles, vans, pickups, and other vehicles with a gross weight less than 10,000 pounds.
- Intermediate vehicles: Busses and single unit trucks with two axles and average operating weight less than 26,000 pounds.
- Heavy vehicles: Vehicles with operating weights more than 26,000 pounds, generally including single unit trucks with three or more axles and all truck and trailer combinations.

### 3. Cost Responsibility

Cost responsibility refers to the degree to which the users of transportation facilities, and services pay for the costs associated with provision of the facilities and services they use.

The two most important issues when assessing cost responsibility in Montana are the degree to which the transportation system is financed through user-specific revenue sources and the degree to which these revenues are equally shared by individual categories of transportation system users.

Montana's most recent cost allocation study was completed in 1992. The study only examined cost allocation on Montana's interstate highway and primary highways.

The results from the Montana's 1992 cost allocation study are presented in Exhibits V-9 and V-10. The study evaluated the degree to which the costs of improving and maintaining Montana's highways were incurred by highway users as opposed to non-highway users and the degree to which individual classes of highway users paid the cost that users of their classification placed on the highway system. The study concluded that Montana's system of highway finance is characterized by a level of cost responsibility roughly consistent with other states and consistent with the principal that the highway system should be primarily financed by its users.

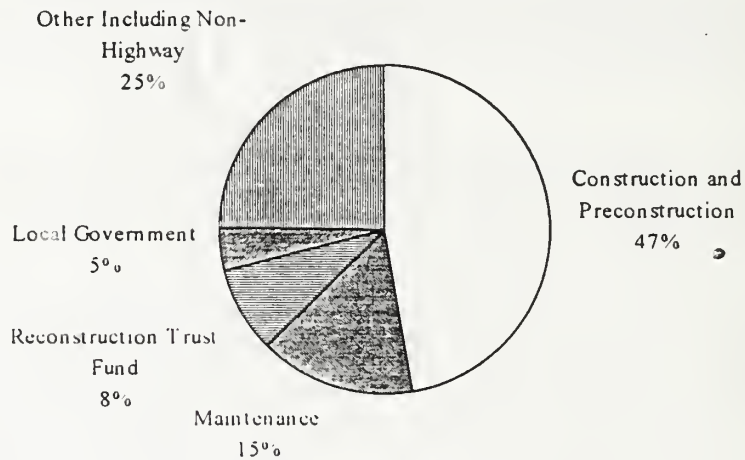
As Exhibit V-9 indicates that in 1992, 87 percent of highway revenues in Montana were derived directly from users in the form of fuel taxes, gross weight fees, new vehicle sales tax revenues, and other transportation related revenues, including permit fees and traffic violation fines. Only 13 percent of highway revenues were derived from non user specific sources.

User equity is evaluated in terms of equity ratios, that measure the ratio of average revenue to allocated costs of providing user service. Equity ratios less than 1.00 indicate that a user group is relatively underpaying its share of highway costs. Ratios exceeding 1.00 indicate that a user group is overpaying. An equity ratio of 1.00 indicates the user group is paying exactly its share of highway costs.

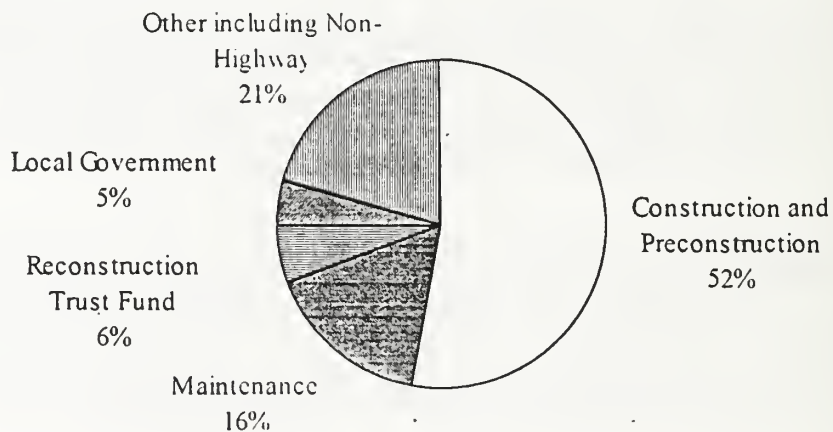


## Exhibit V-8 Highway Program Expenditures<sup>1</sup>

### Fiscal Year 1989 to 1994 Average



### Fiscal Year 1995



Source: Montana Department of Transportation Cash Flow Reports.

<sup>1</sup>Includes new obligations, previous obligations outstanding and reserve required for federal match.



MDT projects that bond interest and principal should be retired in its entirety in fiscal year 2006.

The major features of the change in program expenditures 1989 to 1994 are discussed in turn.

## **1. Decline in Reconstruction Trust Fund expenditures**

An important difference between expenditure periods fiscal year 1995 and the preceding five year period lies in the share of MDT spending accounted for by the Reconstruction Trust Fund.

The decline in Reconstruction Trust Fund spending is mainly due to the exhaustion of proceeds derived from Montana's bond sale during the 1980s. Bond revenues were the principal source of financing for the Reconstruction Trust Fund. The Reconstruction Trust Fund is now financed out of current revenues.

## **2. Expenditures for Federal Match Requirements**

Montana's ability to meet the matching requirements that accompany federal transportation funding will be a key issue for implementing TranPlan 21. With the passage of ISTEA, the revenues needed annually by the MDT to meet its federal matching requirements more than doubled to \$37 million in fiscal year 1994 from \$18 million in fiscal year 1990.

Recognition that the MDT would be unable to meet new federal matching requirements that accompanied ISTEA was a major factor that led to the legislature to increase the state's fuel taxes in 1993 and 1994. Failure to meet federal matching requirements in the future could place in jeopardy millions of dollars of federal transportation assistance.

Two factors should be kept in mind as Montana evaluates its future federal matching obligations. One is the possibility and even likelihood that federal matching requirements may rise in future years as federal budgets become tighter. Montana must also keep in mind that the transportation programs under which Montana draws funding from the U.S. Department of Transportation operate on a reimbursement basis. The MDT must fund construction costs and then await reimbursement from the federal government. In evaluating its funding needs, Montana must keep in mind that it needs revenues sufficient not only to meet current costs, but that revenues must be adequate to allow it to meet its reimbursable federal matching obligations as well.

## 6. Rail Programs

Montana is eligible for federal rail assistance under the Local Rail Freight Assistance Act. The Program provides funding on a federal/local matching share basis for rail planning and rail service assistance projects. Under the Local Rail Freight Assistance Act, the federal government will pay 50 percent of acquisition and construction costs and 70 percent of rehabilitation project costs. The balance of project costs must be provided from other sources.

Under the Local Rail Freight Assistance Act, Montana receives \$36,000 annually for rail planning. States can also compete for discretionary project funds. To be eligible for funding under the Local Rail Freight Assistance, a project must be documented in a current state rail plan. Montana has not applied for any discretionary the Local Rail Freight Assistance Act funding due to a lack of committed projects.

## B. ANALYSIS OF HIGHWAY EXPENDITURES

Actual highway expenditures are presented by major expenditure categories for fiscal year 1995 and compared to average annual expenditures for the preceding period 1990 to 1994 in Exhibit IV-7.

Construction and preconstruction accounted for the largest share of highway program expenditures in both periods. The construction and preconstruction category includes expenditures for constructing new and reconstructing existing highway facilities, resurfacing and widening, bridge repair and rehabilitation, and safety improvements.

Maintenance comprised the second largest single category of highway program expenditures in both periods. Maintenance is also projected to continue to occupy the second largest category of MDT highway spending in the future.

In fiscal year 1995, 4.6 percent of Highway Program expenditures were budgeted for local governments. This represented the \$16.8 million in fuel tax revenues earmarked under state law to cities and counties.

The Other expenditure category includes a number of non-highway expenses. Included are transfer payments to the Montana Department of Justice to pay for the state Highway Patrol and expenses incurred for servicing the MDT's bonded debt. In fiscal year 1993, the MDT began to repay the principal on bonds it sold during the 1980s to finance the Reconstruction Trust Fund. The costs of repaying this principal explains much of the increased expenditure share accounted for by the Other category in fiscal year 1995. The

## 5. Aeronautics Funding

The Montana Department of Transportation operates two programs aimed at financing airport development and improvement projects. One program is a grant program and the other is a loan program. Both programs were established in 1993.

Any state agency and any city, town, county, or other political subdivision of the state that operates an airport open to the public on a nondiscriminatory basis is eligible for assistance under the loan and grant programs. Grant amounts are limited to 50 percent of the sponsor's share of airport project costs. Loans can be for a maximum of 100 percent of project costs. Loan rates are fixed at 1/2 of the Prime Rate as determined by the Montana Board of Investments in January of each year. Loan payback periods of up to ten years are allowed.

Aviation programs administered by the MDT are funded by a 3 cent per gallon tax that Montana levies upon the purchase of aviation fuel. Use of the 3 cent fuel tax breaks down as follows:

- The first penny collected per gallon of fuel tax is dedicated to finance the administrative and mandated functions of the MDT's Aeronautics Division, including pilot and airplane registration. Revenue dedicated to administration and mandated functions totalled \$385,000 in 1994.
- The second penny collected per gallon of fuel tax is dedicated to finance of the Airport Development Loan Program. Revenue dedicated to airport development loans program totalled \$85,000 in 1994.
- The third penny collected per gallon of fuel tax is dedicated to finance of the Airport Development Grant Program. Revenue dedicated to airport development grants totalled \$85,000 in 1994.

State law allows Part 121 air carriers and Part 135 air taxi and commercial air service operators to receive rebates on the amount of second and third penny of aviation fuel tax they pay. Eligible parties must formally make a request for rebate to the MDT in order to receive a rebate.

The MDT also operates the Preliminary Engineering Grant program. This program offers grants of up to \$1,000 to airports to assist in planning, engineering, design, and other improvement preconstruction activities. Expectations are that with the advent of the development grant and loan programs, the Preliminary Engineering Grant program will be little utilized in the future.

Typically, the MDT allocates Section 5311 funds among the following nine transit operators:

- Butte-Silver Bow County Transportation, Butte.
- Helena Bus-Dial a Ride, Helena.
- Fort Peck Transportation, Poplar.
- Garfield County Council on Aging, Jordan.
- Black Feet Health Board, Browning.
- Powder River Council on Aging, Broadus.
- Flathead County Area 9 Agency on Aging, Kalispell.
- Valley County Council on Aging, Glasgow.
- Fergus County Council on Aging, Lewistown.

c. **Section 5307 - urban transit block grants**

The Section 5307 program provides grants to transit systems in cities with populations of over 50,000. In Montana, the cities of Missoula, Great Falls, and Billings are eligible for Section 5307 assistance. The program is administered directly between eligible cities and the Federal Transit Administration. The MDT plays little role in the Section 5307 program.

Section 5307 funds can be used for planning, acquisition, construction, and operation of facilities and equipment used in public transit. The federal government will pay up to 80 percent of the cost of capital and planning projects and up to 50 percent of transit system operating deficits. Prior to recodification, the Section 5307 program was known as the Section 9 program.

- Total 1993 Section 5307 funding for Missoula, Great Falls, and Billings was \$1,319,480. The Federal Transit Administration provided \$1,055,584 of this total, local match totalled \$263,896.



**a. Section 5310 - elderly and disabled transit**

The Section 5310 program provides federal funds for the purpose of providing transportation services to the elderly and persons with disabilities. Prior to recodification, the program authorized by Section 5310 was known as the Section 16 program.

Local transit providers eligible for Section 5310 funds include city and county governments, local transit authorities, nursing homes, hospitals, and local and regional Agencies- and Councils on Aging. The Federal Transit Administration will pay a maximum of 70 percent of eligible project costs under a Section 5310 program grant. Local transit providers must provide the remaining 30 percent.

In a typical year, the MDT receives about 35 to 45 applications from local transit providers for funding under the Section 5310 program. Typically, available funding is adequate to meet only about one-third of grant requests.

- In 1994, Section 5310 funding in Montana totalled \$383,976. The Federal Transit Administration paid \$268,783 of this total, and the state, \$11,519. Local transit operators provided the remaining \$103,674.

**b. Section 5311 - rural and small city transit**

The Section 5311 program provides federal funds for the purpose of providing transportation services in non-urbanized areas under 50,000 population. Prior to recodification, the program authorized by Section 5311 was known as the Section 18 program.

Under Section 5311, the Federal Transit Administration will pay a maximum of 70 percent of project capital and administrative costs and a maximum of 50 percent of transit system operating deficit costs. The remaining 30 and 50 percent must be provided by local transit providers and other sources. In Montana, most Section 5311 funds are used to pay for transit system operating expenses.

- In 1994, Section 5311 funding in Montana totalled \$1,099,744. The Federal Transit Administration paid \$646,086 of this total and the state, \$24,265. Local transit providers paid \$429,393.



#### 4. Transit Funding

The MDT plays a role in the Section 5310 (formerly Section 16) program, which provides funding for transportation of the elderly and of persons with disabilities and the Section 5211 (formerly Section 18) program, which funds transit in small cities and rural areas. Montana applies for annual grants from the Federal Transit Administration under both programs. Montana allocates its grant receipts among local transit providers based upon need and the availability of local matching funds.

#### Exhibit V-7 Distribution of Surface Transportation Program Funding by Highway System Fiscal Year 1994

Montana Highway System Category	STP Funding (in millions)	Percent of STP Funding	Lane Miles	\$ Per Lane Mile	Annual Vehicle Miles Travelled <sup>2</sup>	\$ Per Vehicle Mile Travelled <sup>2</sup>
STP Total <sup>1</sup>	\$51.44	100%	N/A	N/A	N/A	N/A
to Non-NHS Primary	\$33.85	65.8%	5,793	\$5,843	3,018,389	\$11.20
to Secondary	\$13.12	25.5%	9,244	\$1,419	1,585,363	\$8.3
to Urban	\$4.47	8.7%	769	\$5,812	1,936,253	\$2.4

Source: Montana Department of Transportation

<sup>1</sup> Excluding set asides.

<sup>2</sup> Average Vehicle Miles Travelled is for 1993. \$/Vehicle Miles Travelled represents fiscal year 1994 expenditures divided by 1993 Vehicle Miles Travelled data. More recent vehicle mileage data unavailable.

Billings, Missoula, and Great Falls receive transit funding under the Section 5307 (formerly Section 9) urban transit block grant program. These cities apply for Section 5307 grants directly from the Federal Transit Administration. State government has little direct involvement in the Section 5307 program.

(2) **Highway maintenance**

Maintenance of Montana's highway system is funded wholly with state revenues. Maintenance includes roadway plowing and sanding, patching and sealing, and upkeep of roadside facilities. The cost of maintaining Montana's highways has increased in recent years, rising to \$60 million in fiscal year 1995 from \$45 million in fiscal year 1991.

The MDT funds maintenance at the level necessary to ensure that Montana is eligible for the most favorable matching ratio for federal ISTEA highway funding assistance.

**3. Suballocation of Surface Transportation Program Funds**

A special feature of Montana's system of highway funding is its suballocation of federal Surface Transportation Program funds among state designated roadway system categories. Montana's suballocation combines strong local input in highway project selection with MDT administration of project development and project financing.

By statute, Montana's highway system is divided into the following three systems:

- Primary Highway System.
- Secondary Highway System.
- Urban Highway System.

Each year, the Montana Highway Commission divides the state's Surface Transportation Program funds between these three systems.

Exhibit V-7 depicts how Montana's Surface Transportation Program funds were divided for fiscal year 1995. Suballocation involves further division of the funds distributed to each highway system.

Funds suballocated to local governments are not actually transferred to local government control. Funds used for locally prioritized projects remain under the administration of the MDT.

Governor's Office of Budget and Planning has proposed eliminating Coa Tax receipts as a source of highway program revenues.

**d. Revenue bonds have expired**

In the 1980s, the MDT issued \$150 million in revenue bonds. Bonds are not a revenue source but a cash flow mechanism that allows for large expenditures in a short period of time to be paid off from revenues over a longer period of time. The bond issue helped pay for a substantial part of the MDT's highway program between 1983 and 1992. Bond proceeds constituted the major funding source for the Reconstruction Trust Fund and secondary highway preservation. Bond proceeds have now been exhausted and revenues from this source are no longer available. The MDT continues to fund the Reconstruction Trust Fund out of current revenues at a level of \$20 million per year.

**e. State funded programs**

The state directly funds the reconstruction trust fund that makes state fuel tax funds available for secondary system improvements and the state's maintenance program.

**(1) Reconstruction Trust Fund**

The Reconstruction Trust Fund is a highway preservation program wholly funded with revenues directly collected by Montana. The federal government plays no role in funding the Reconstruction Trust Fund. For fiscal year 1994 \$200 million was allocated to the Reconstruction Trust Fund and for fiscal year 1995 \$20.6 million. This represents a large decline from the 1991 level of \$48 million. The decline is mainly due to the exhaustion of proceeds from bonds Montana sold during the 1980s. At present, Montana is financing the Reconstruction Trust Fund out of current revenues.

The Reconstruction Trust Fund is the major source of funding for preservation projects on Montana's secondary highway system. Funding for fiscal year 1995 is forecast to be \$20.61 million, of which over 75 percent (\$15.65 million), will be allocated for secondary system preservation. The balance is earmarked for preservation of urban roads (\$420,000) and preservation of the orphan plant (\$4.54 million).

Total highway program revenues are projected at \$300 million. The federal government is projected to contribute just over one-third of highway program revenues. Montana's highway revenue sources are described in turn.

**a. Fuel taxes**

Fuel taxes on gasoline and diesel fuel provide the largest source of direct collected revenue used to finance the MDT's highway program. For fiscal year 1995, fuel tax receipts are projected to total \$161.8 million, or 53.9 percent of total highway program revenues. Taxes upon gasoline represent about 72 percent of projected fiscal year 1995 fuel tax receipts, with the balance coming from taxes upon diesel.

Montana's fuel tax is currently 27 cents per gallon. There were two recent fuel tax increases authorized by the state legislature. One increase added three cents to the fuel tax rate effective July, 1993. A second increase effective July 1994 added another three cents to the fuel tax rate.

**b. Gross Vehicle Weight fees**

Montana levies Gross Vehicle Weight fees upon commercial vehicles using Montana's highways. The fees are based upon the gross weight of commercial vehicles as measured by scales located at highway weigh stations. Montana's Gross Vehicle Weight fees are based on vehicle weight only, and apply to vehicles weighing in excess of 6,000 pounds. Gross Vehicle Weight fees to the highway program are projected to total \$26.9 million in fiscal year 1995 and account for 9 percent of highway program revenues.

**c. Other direct collected revenues**

In addition to fuel taxes and Gross Vehicle Weight fees, the MDT draws upon other revenues to finance its highway program. Montana levies a sales tax upon new vehicles purchased in Montana, with revenues dedicated to highway improvement and preservation. The tax ranges from 3/8 to 1.5 percent of vehicle list price, depending upon value. The MDT includes sales tax receipts in the Gross Vehicle Weight fee category when reporting revenues, so sales tax revenues are not independently identified in Exhibit V-6.

Other direct collected revenues used to fund the MDT's highway program include various permit fees and fines remitted to the Montana Department of Justice and revenues from Montana's Coal Tax Trust Fund. The



e. **Congestion Mitigation and Air Quality**

ISTEA dedicates the Congestion Mitigation and Air Quality program to implementation of the transportation emissions control elements of state air quality implementation plans. Projects funded by the Congestion Management and Air Quality program must contribute to attainment of federal Clean Air Act air quality standards.

The federal government provides 86.58 percent of Congestion Management and Air Quality funding. States are responsible for 13.42 percent, each state must match each federal dollar with \$0.15. Montana allocated \$4.87 million in Congestion Mitigation and Air Quality projects in fiscal year 1994.

2. **Highway revenues**

The revenues available to finance TranPlan 21 include the federal funding programs described above and revenues collected directly by Montana. Montana uses directly collected revenues to meet its federal ISTEA match requirements and to supplement Surface State Transportation Program funds to finance improvements on the secondary system, local roads and highway maintenance.

Exhibit V-6 breaks down projected fiscal year 1995 highway program revenues by revenue source. This shows the source of the revenues that finance projects in the fiscal year 1995 highway program.

**Exhibit V-6**  
**Projected Highway Program Revenues**

Revenue Source	Total (\$Million)
Fuel tax	161.8
Gross Vehicle Weight Fees	26.9
Other/Accounts Receivable	1.3
Federal funds	111.1
<b>TOTAL</b>	<b>301.1</b>

Source: MDT Cash Flow Projections 5/10/94 and MDT  
Statewide Transportation Improvement Program, 195 to 1997



**(1) Safety and Hazard Elimination**

Under ISTEA, Montana and other states must use ten percent of Surface Transportation Program funds for safety construction and hazard elimination. Examples of project uses include signing, no passing zone stripping, installation of flashers and crossing gates, and pavement marking.

Montana subdivides its Hazard Elimination funds into two categories:

- STPHS: Hazard elimination on high accident roadways.
- STPRP: Eliminating hazards at rail/highway crossing.

The federal government provides 90 percent of Hazard Elimination funding and states are responsible for 10 percent. Montana's funding allocation for fiscal year 1994 was \$5.4 million.

**(2) Transportation Enhancements**

ISTEA requires that Montana and other states use ten percent of Surface Transportation Program funds for transportation enhancements. Enhancements include a broad range of improvements and activities, including acquisition of scenic and historic sites, landscaping and other scenic beautification, bicycle and pedestrian, preservation, rehabilitation and operation of historic transportation structures, buildings, and facilities, preservation of abandoned railway corridors, control and removal of outdoor advertising, archeological planning, and mitigation of water pollution caused by highway runoff.

Montana established the Community Transportation Enhancement Program to allocate Enhancement funds to cities. Cities over 1,000 population and counties are allocated Community Transportation Enhancement Program allocations through a per capita distribution. Local governments must provide a match to their state Community Transportation Enhancement Program allocations.

The federal government provides 86.53 percent of enhancement program funding for all projects other than bicycle/pedestrian facilities, for which the federal share is 80 percent. Local governments are responsible for 13.42 percent and 20 percent respectively. The Community Transportation Enhancement Program funding allocation for fiscal year 1994 was \$5.43 million.

Legislation passed by the 53rd session of the Montana legislature requires that Montana's Surface Transportation Program funds be suballocated between the different state funding systems.

For fiscal year 1994, these divisions were allocated as follows:

- Primary highways - \$33.85 million.
- Secondary highways - \$13.12 million.
- Urban highways - \$4.47 million.

Eligible uses for Surface Transportation Program funding include:

- Roadway construction, reconstruction, resurfacing, restoration, and rehabilitation.
- Operational improvements.
- Capital costs for transit projects and publicly owned intracity or intercity bus terminals or facilities.
- Highway and transit safety improvements.
- Surface transportation planning, highway and transit technology transfer activities, and research and development.
- Capital and operating costs for traffic management and control.
- Fringe and corridor parking facilities.
- Carpool and vanpool projects.
- Most transportation control measures in the Clean Air Act.
- Development and establishment of management systems.
- Transportation enhancements.
- Participation in wetland mitigation and wetland banking.
- Bicycle facilities and pedestrian walkways.
- State bicycle and pedestrian coordinator.

## Exhibit V-5

### Eligible Uses for ISTEA Program Funds

	Surface Transportation Program	National Highway System	Interstate Maintenance	Congestion Management and Air Quality	Bridge Program	Safety and Hazard Elimination	Transportation Enhancements
Eligible Uses	Improvement and preservation to any road not functionally classified as a local or rural minor collector. Uses include bridges and safety projects, bicycle and pedestrian facilities, and carpool and vanpool programs.	Improvement and preservation of Montana's portion of the National Highway System.	Rehabilitation, restoration, and resurfacing, and reconstruction of Montana's portion of the Interstate highway system	Projects that contribute to attainment of federal Clean Air standards and to alleviating congestion in urban areas, including transit, transportation demand management, and pedestrian and bicycle facilities.	Rehabilitation and replacement of deficient bridges. To be used for both on system and off system bridges.	Construction of safety and hazard elimination facilities on roadways and at highway-rail crossings..	Environmental related projects including historic preservation, bicycle and pedestrian, landscaping, preservation of abandoned railroad corridors, removal of outdoor advertising, and water runoff mitigation.
Notes	Montana suballocates between Primary, Secondary, and Urban Highways.			Missoula only eligible area in Montana.			

**Exhibit V-4**  
**Montana ISTEA Obligations, Fiscal Year 1995.**  
 (\$ in millions)

	Surface Transportation Program	National Highway System	Interstate Maintenance	Congestion Mitigation and Air Quality	Bridge Program	Safety and Hazard Elimination	Transportation Enhancements
Total Program Funding	\$31.62	\$33.61	\$48.62	\$2.57	\$2.68	\$5.31	\$1.31
Federal Share	\$27.38	\$29.09	\$44.36	\$2.22	\$2.14	\$4.78	\$1.13
Montana Share	\$4.24	\$4.52	\$4.26	\$0.348	\$0.540	\$0.530	\$0.180
Federal Percentage	86.58%	86.58%	91.24%	86.58%	80.00%	90.00%	86.58%
Montana Percentage	13.42%	13.42%	8.76%	13.42%	20.00%	10.00%	13.42%
Montana Match to Each federal Dollar	\$0.15	\$0.15	\$0.096	\$0.15	\$0.25	\$0.11	N/A

Source: Montana Department of Transportation, State Transportation Improvement Program 1995-1997.



The federal government provides 80 percent of Bridge Program funding and states are responsible for 20 percent. Montana's Bridge Program funding for fiscal year 1994 was 9.95 million.

**d. Surface Transportation Program**

All roads functionally classified as major collectors and above and that are on a state funding system can be improved with Surface Transportation Program funds.

ISTEA requires that each state set aside ten percent of its Surface Transportation Program apportionment for use in safety and prevention projects and a further ten percent for transportation enhancements.

A special feature of Montana's system of transportation funding is the allocation of Surface Transportation Program funds among state designated funding systems.

The federal government provides 86.58 percent of National Highway System funding, leaving Montana responsible for 13.42 percent. The state must match each federal dollar with \$0.15.

Eligible uses for National Highway System funding include:

- Construction, reconstruction, resurfacing, restoration, and rehabilitation.
- Operational improvements.
- Construction of, and operational improvements for, a federal-aid highway not to the National Highway System and construction of a transit project eligible under the Federal Transit Act in the corridor of fully access-controlled National Highway System routes. These projects must be cost effective and improve the level of service on the National Highway System segment.
- Highway safety improvements.
- Transportation planning, highway-related technology transfer activities, and research and development.
- Start-up costs for traffic management and control (limited to two years).

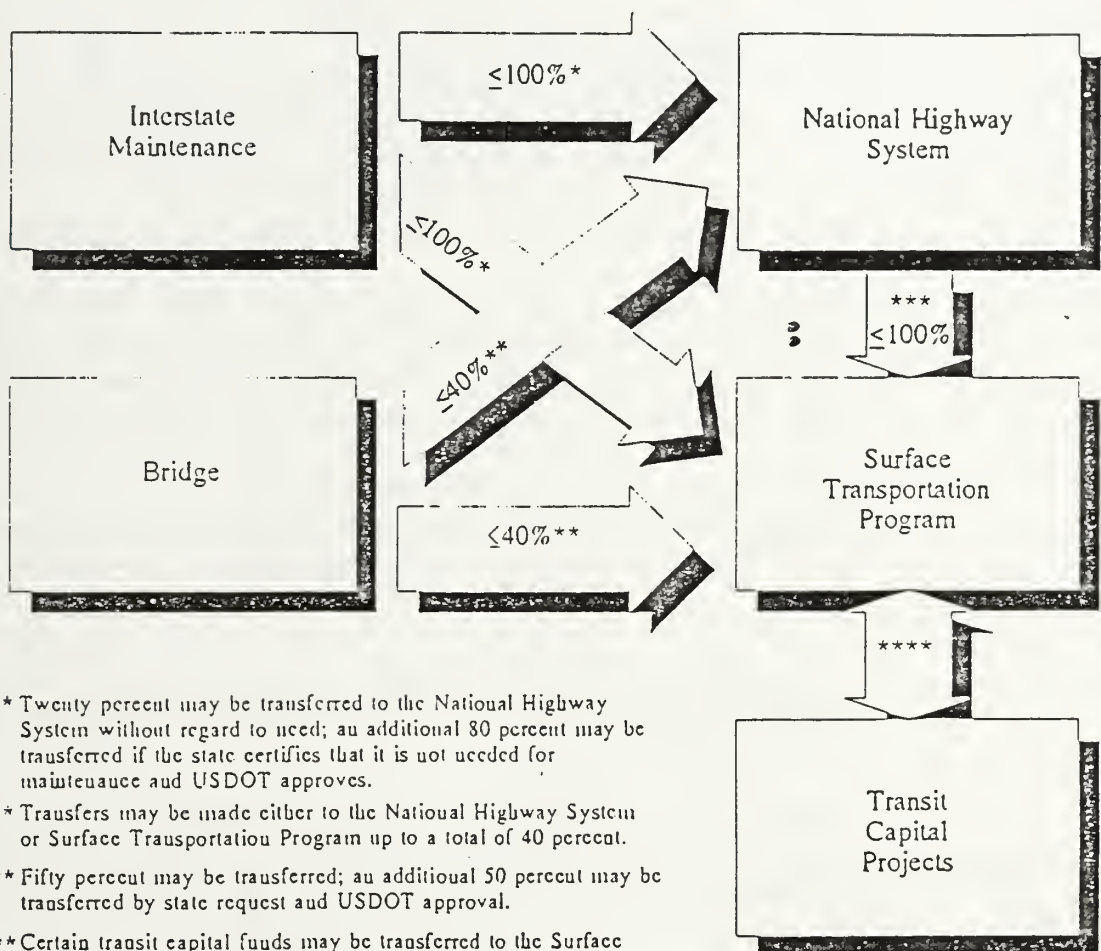
**c. Bridge Program (BR)**

Bridge Program funds are for rehabilitation and replacement of deficient bridges. In addition to standard inspection, maintenance, rehabilitation, and replacement of bridges, Bridge Program funds can be used for bridge painting and the seismic retrofit of deficient bridges. The Bridge Program allows for the installation of bicycle and pedestrian facilities during bridge rehabilitation and replacement projects.

A minimum of 15 percent of state Bridge Program funds must be used on local roads, rural minor collectors or off-system bridges. States may increase the share of their Bridge Program funds used on off-system bridges to a maximum of 35 percent. Montana has selected to use 35 percent of its fiscal year 1995 Bridge Program funds for off-system bridges.

### Exhibit V-3

#### Rules for Making Transfers Between ISTEA Categories



\* Twenty percent may be transferred to the National Highway System without regard to need; an additional 80 percent may be transferred if the state certifies that it is not needed for maintenance and USDOT approves.

\*\* Transfers may be made either to the National Highway System or Surface Transportation Program up to a total of 40 percent.

\*\*\* Fifty percent may be transferred; an additional 50 percent may be transferred by state request and USDOT approval.

\*\*\*\* Certain transit capital funds may be transferred to the Surface Transportation Program only after specific requirements have been met.

#### b. National Highway System

National Highway System funds are dedicated to the improvement and maintenance of roads designated as part of the National Highway System. The final composition of the National Highway System is expected to be approved by Congress in 1995. Preliminary indications are that the National Highway System will incorporate Montana's portion of the Interstate system and about 2,700 miles of additional Montana roadway. This would leave more than two-thirds of Montana roadway mileage classified before ISTEA as federal aid primary highway out of the National Highway System.

ISTEA provides funding for roadway improvement and maintenance funding under the following programs:

- National Highway System (NHS).
- Interstate Maintenance (IM).
- Bridge Rehabilitation and Reconstruction (BR).
- Surface Transportation Program (STP) which includes:
  - Safety and Hazard Elimination (STPHS and STPRP), and
  - Transportation Enhancements (STPE).
- Congestion Mitigation and Air Quality Program (CMAQ).

Montana's ISTEA program allocation for fiscal year 1994 was \$144.6 million. By law, Montana must match the funds it receives from the federal government under ISTEA. For the \$144.6 million Montana budget under ISTEA in fiscal year 1994, Montana will match with just under \$14 million of its own revenues.

The Congress has never fully funded ISTEA. Full funding would have given Montana about \$190 million in federal transportation obligation authority in fiscal year 1995. Actual obligation authority equalled only two-thirds of the full funding level.

Federal law allows Montana flexibility to transfer certain funds between ISTEA programs. Exhibit V-3 summarizes the rules for making transfers between the ISTEA categories.

The ISTEA funds that will be available to the MDT for implementing TranPlan 21 are discussed in turn below. Exhibit V-4 summarizes funding and federal matching requirements for each of these programs and Exhibit V-5 summarizes the purposes for which funds from these programs can be used.

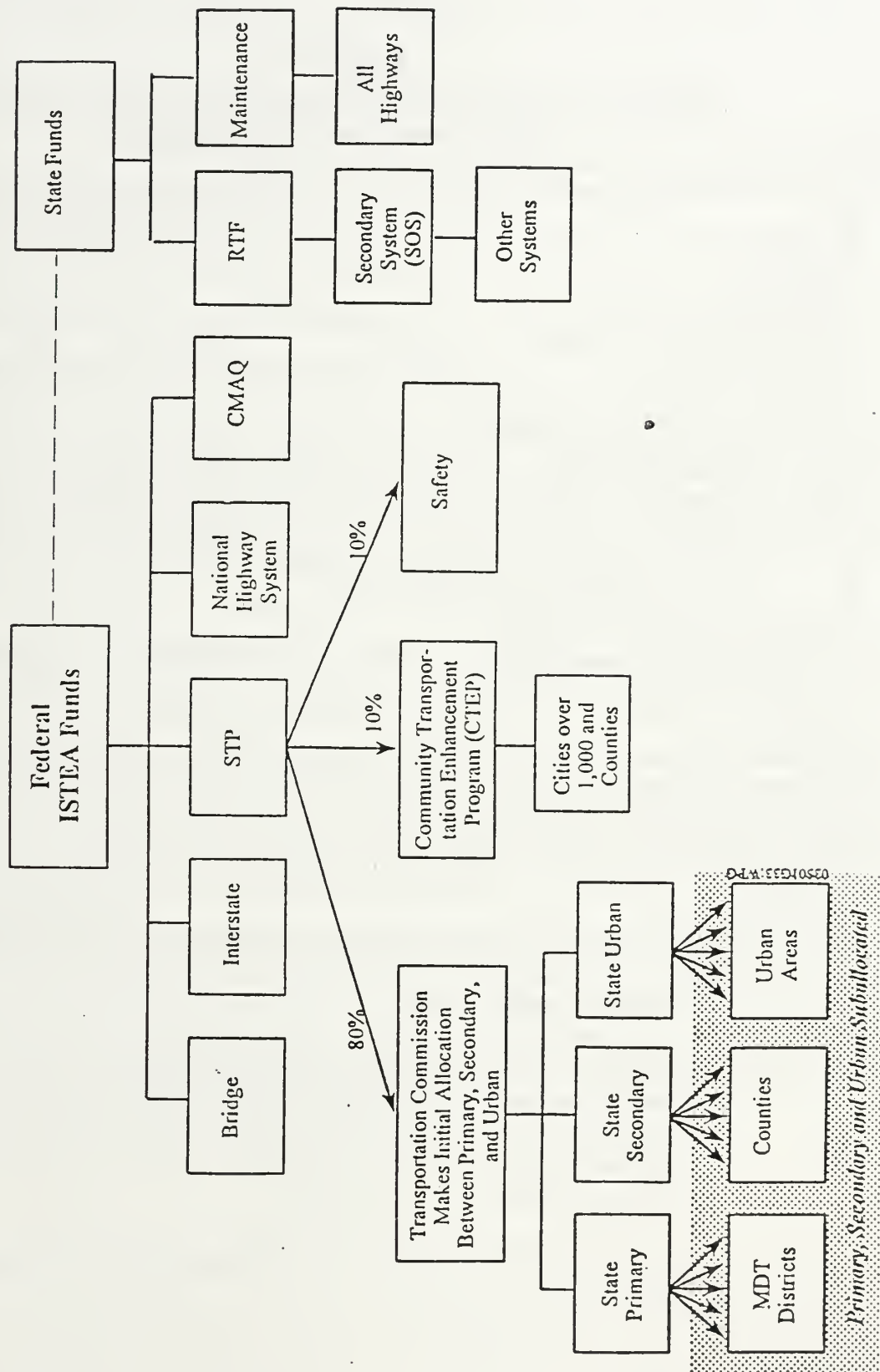
**a. Interstate Maintenance**

The Interstate Maintenance program is for rehabilitation, restoration, resurfacing, and reconstruction of the Interstate highway system. Use of Interstate Maintenance funds includes the reconstruction of bridges, interchanges, and crossings over and under existing Interstate routes, including the acquisition of right-of-way. Interstate Maintenance funds can also be used for preventive maintenance if it can be demonstrated that doing so will cost-effectively extend bridge and pavement life.

The federal government provides 91.24 percent of Interstate Maintenance funding. States are responsible for 8.76 percent.



Exhibit V-2: Allocation and Suballocation of Federal ISTEA Funds in Montana



**Exhibit V-1**  
**Highway Improvement and Maintenance Fund Allocation**  
**Fiscal Year 1994 (\$ in Millions)**

		Federal	State
<b>ISTEA</b>			
Interstate		42.4	
National Highway System		36.0	
Bridge Program		9.95	
Surface Transportation Program			
Non-NHS Primary	33.8		
Secondary	13.1		
Urban	4.5		
Surface Transportation Program Total		51.4	
Safety and Hazard Elimination		5.4	
Transportation Enhancements		5.4	
Congestion Mitigation and Air Quality Improvement Program		4.8	
<b>ISTEA Total</b>		<b>155.35</b>	
State Funded Match @ 87 percent			18.8
Reconstruction Trust Fund			20.0
Maintenance			59.4
<b>TOTAL</b>		<b>155.35</b>	<b>98.20</b>

Source: Montana Department of Transportation, Statewide Transportation Improvement Program, 1995-1997.

**1. Federal Funds, ISTEA**

Under ISTEA, Montana receives federal revenues from the U.S. Department of Transportation for use in highway construction, improvement, and Interstate maintenance. The Congress passed ISTEA into law in December 1991 and authorized ISTEA to provide transportation finance assistance to Montana and other states through fiscal year 1997.

An overview of the different state and funding programs in Montana is shown in Exhibit V-2.

## V. FINANCING TRANPLAN 21



This section identifies the funding sources, evaluates the prospects for future funding, and evaluates the key transportation finance issues that will affect the implementation of TranPlan 21. The following are considered in turn:

- Current transportation funding in Montana.
- Future transportation funding in Montana.
- Finance mechanisms for implementing TranPlan 21.

The financial data presented in this section are drawn from reports provided by the Montana Department of Transportation (MDT). Data used were the most current available at the time of this document's preparation. In practice, Montana's transportation finances are subject to continuous fluctuation. For this reason, the MDT's transportation revenues and expenditures are likely to vary in future periods from the balances reported in this document.

### A. CURRENT TRANSPORTATION FUNDING PROBLEMS IN MONTANA

This section evaluates current transportation funding in Montana. Included is an inventory of the MDT's major transportation funding programs, an evaluation of the revenues that finance these programs, and identification of MDT roadway improvement and preservation expenditures. For each program the purposes for which program funds can be used, the matching requirements, and the level of program funding for fiscal year 1995 are described.

The Montana Department of Transportation funds highway construction, improvement, and maintenance through revenues received from the federal government and by revenues collected directly by Montana. Exhibit V-1 lists the actual funds that are programmed for expenditure in fiscal year 1995 for each major program and by funding source. It is important to note that these are subject to year-to-year fluctuations.

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1989 Montana State Aviation System Plan. Montana Department of Transportation, Aeronautics Division. (Helena, MT: 1989).

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Terminal Area Forecasts (1990-2010). Federal Aviation Administration.

viable. There is adequate capacity in the pipeline system to accommodate current and expected demands. In the event that the state's pipeline system does not operate for any reason, then the rail and truck modes will need to serve the oil and gas market. There is inadequate capacity within those modes to accommodate such additional demand. However, the likelihood of this occurring is remote.

Montana is a major transit state for pipeline shipments between Canada and the North Central States. If there is to be any shift towards other modes it is likely to affect east-west corridors along the northern tier of the state as well as the northward extensions of these corridors into Alberta and Saskatchewan.

The pipeline system is located within several specific corridors. The use by other modes. An inventory of the rights-of-way would be needed to determine that usefulness.

## **G. REFERENCES**

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transportation would require establishment of a design and manufacturing industry geared toward the mode.

Realistic application of solids pipelines within the time frame of the Plan need be limited by these considerations and also by the types of commodities available for such transportation within Montana. Current technical applications to solids movement in tubes or pipelines is limited to bulk goods. In the case of bulk goods as with liquids or gas the flow is continuous between origins and destinations. The shipper and consignee are not concerned as to which specific unit of material completes the trip between origin and destination as long as the total amount ordered is delivered. In the case of value added items such as manufactured products, shipments are increasingly more specific to particular patterns of discrete origins and destinations. For movement through pipelines such transportation would either be limited to dedicated routes between shippers and receivers or must await technological developments allowing automated interchanges along an integrated solids pipeline system.

Further development of the pipeline mode for such commodities is limited by being economically prohibitive. Under current economic conditions it is far more cost effective to move goods by any of the conventionally available modes than to invest in creation of altogether new techniques.

**c. Transportation Implications of Montana's Pipelines**

As noted at the beginning of this section, pipelines are an integral part of Montana's transportation system but have unique characteristics making them different from the facilities of other modes. The chief differences are that pipelines provide continuous movement of freight compared to the discrete movement offered by vehicles. Also pipelines are currently limited to specific commodities, namely oil and gas.

Based on the information provided in this section, the following conclusions can be made about pipelines effects on the state's transportation system:

Commodities served are currently limited to oil and gas and it is reasonably certain that no other materials will be shipped in significant quantities during the life of the Plan. While it is physically possible to ship other commodities via pipeline, it is not economically viable to do so.

The commodities shipped via pipeline are not readily susceptible to being hauled by other modes in large quantities or over long distances. The physical possibility for doing so does exist but it is also not economically



## **4. Future Conditions**

### **a. Conventional Pipelines**

Montana is both a major transit area, supplier and reserve of pipeline products. Depletion of in-state reserves of natural gas is projected by the Federal Energy Regulatory Commission to be about 23 percent over the life of the Plan. This indicates excess capacity of pipelines is likely to continue.

There are no specific areas where trunk or grid capacity deficiencies are present or projected to occur. Some localized increases in capacity may be necessary if specific industries alter their energy consumption patterns. This will be the case if the economics of establishing gas fired plants improves as opposed to using the currently low cost coal firing technique.

It is expected that there will be some increase in capacity provided on interstate routes to meet demands in other regions. Canada and Montana are competitive with other source areas in meeting those demands and thus the provision of additional capacity is primarily a function of ensuring that Canadian and Montana based products are effectively marketed to growth regions. For natural gas, it is expected that the Alberta to California corridor will be developed during the planning horizon. This is also known as the Altamont Corridor and total increased capacity is expected to be about 700 million cubic feet.

Increased tax credits may become available to deep gas fields in the Rockies. If this occurs, some pipeline development may occur toward the west of the existing Alberta to Wyoming corridor.

### **b. Alternative Pipeline Uses**

There remains the potential for moving solid objects through pipelines. Depending upon the commodity in question, such goods could be carried either by a transporting medium such as water or encased within a capsule and moved by pneumatic pressure or by linear induction. Prototypes and small-scale operations of these have been demonstrated to be technically feasible. Analysis of its design and economic applicability has been undertaken as part of national transportation planning research.

There are no known technological barriers to providing this mode of transportation. However, there are no specific "off-the-shelf" techniques available for any particular application. Implementation of this type of

## Exhibit IV-44

### Summary of Principal Montana Gas Pipelines (1991)

Carrier	Reserves (mcf)	Production (mcf)	Configuration	Service Type
Williston Basin	257	6	Trunk/Grid	Outbound to Central U.S
KN Energy	170	4	Grid	Transit of Canadian Gas
Northern Natural	164	21	Trunk/Grid	Transit of Canadian Gas

Note: mcf = million cubic feet

Source: U.S. Department of Energy. Energy Information Administration. Capacity and Service on the Interstate Natural Gas Pipeline System. (1992)

Most consumption within Montana of pipeline products is for residential uses as opposed to industrial uses. While the region has been growing overall, the per capita consumption has decreased slightly. This further indicates that pipeline capacity is sufficient.

#### d. Planning issues

Issues of concern affecting specific pipelines usually involve land use, safety, and environmental considerations. Land use issues involve access to and across rights-of-way. Both safety and environmental considerations frequently are concerned with locations at compressing stations and where interconnections between pipelines or between pipelines and processing areas occur. At these locations the potential for venting, spillage, or other accidents is more problematic than along the trunk portion of the pipeline corridor.

No inventory exists as to the width of pipeline rights-of-way. It is reasonably likely that higher functions of pipelines such as trunk lines have a wider right-of-way than local distribution and gathering lines since trunk links are usually of greater diameter. An inventory will reveal whether pipeline conditions can be readily utilized by other modes and whether adequate access is available to and from other modal corridors. As noted in a later section the transportation potential of pipelines is maximized when the options for use of the rights-of-way are maximized. An existing deficiency is that there is a lack of information in this regard.

the neighboring Powder River reserves of Wyoming. They provide product both to Montana and to neighboring portions of the central and Rocky Mountain states.

**c. Volumes of Movement**

Montana has a net inbound movement of natural gas. As noted previously, a principal role of pipelines in Montana is to provide a bridge for Canadian shipments. This through movement plus local consumption is reflected in Exhibit IV-43.

**Exhibit IV-43**  
**Montana Interstate Gas Shipments by Pipeline (1991)**

State/Province	From Montana	To Montana
Alberta/Saskatchewan	0	1203
North Dakota	1223	223
South Dakota	53	0
Wyoming	22	130
<b>TOTAL</b>	<b>1,298</b>	<b>1,556</b>

Source: U.S. Department of Energy. Energy Information Administration. Gas Supplies of Interstate Natural Gas Pipeline Companies. (1992)

Exhibit IV-44 highlights operations of the principal carriers in the state. Although the reserve to production ratios vary between carriers, the statewide average is about 20 to 1; that is there are about 20 units in reserve for every unit transmitted. This ratio has reduced very slightly over the past 5-7 years.

**b. Regional, Local and Interstate Characteristics**

There are several areas of Montana that have significant networks of pipelines. The following describes these areas and their commodity and transportation characteristics. This information is compiled from maps produced by the Montana Board of Oil and Gas Conservation. The Board includes the lines in the Blackfeet, Sweetgrass, and Bearpaw fields within their Northern District and all others in the Southern District. The source areas are listed approximately in rank order of the total pipeline mileage associated with each area. It should be noted that Montana serves as an important state for the transit of pipeline products, particularly gas, from Alberta and Saskatchewan fields to elsewhere in the U.S.

- Blackfeet and Sweetgrass to Wyoming Corridor. Oil and gas source fields for this corridor extend along the Canadian border from Cut Bank east to Hill County. This is a principal corridor for inbound shipments of Canadian products and onward haul to Wyoming and from there to locations in the western states. Carriers include Conoco, Williston Basin, and Montana Power.
- Poplar Corridor. This is located in the far northeast corner of the state and is a major transshipment area of oil from Saskatchewan and from Montana sources to the central states through the Dakotas. Pipelines trend from the northwest to the southeast direction in the area and also southward toward Wyoming and South Dakota. Principal carriers include Texaco and Wascana.
- Bowdoin-Baker corridor. Also located in the northeastern part of the state and also trending northwest to southeast, this corridor primarily features natural gas production, storage, and transshipment of nearby Alberta gas. This area includes the largest single natural gas field and largest storage area in the U.S. Principal carriers are Northern Border and Northern Natural. Principal destinations are in the central states.
- Elk Basin area. This oil and gas is located in the south central portion of the state and is marked by a dispersed network of gathering and trunk lines. Some lines serve local source and consumption areas while others connect with the locations to the north noted previously. Carriers include Montana Power, KN Energy, and Conoco.
- Powder River corridors. These are oil and gas source areas toward the southeastern part of the state and are associated with



transport of pipelines. This would entail additional costs which may make their shipment cost prohibitive.

### **3. Existing Operations**

#### **a. Operating and Regulatory Framework**

Except for municipally owned natural gas lines, most pipelines are investor owned. Privately owned lines are divided between those which are common carriers and those providing proprietary service. The latter usually have a corporate affiliation with an energy industry company.

All pipelines are subject to a variety of federal safety and environmental regulations which are enforced by both federal and state agencies. The transportation aspects of interstate pipelines are regulated by the Federal Energy Regulatory Commission. Intrastate pipeline shipments in Montana are regulated by the Department of Natural Resources and Conservation, Oil and Gas Conservation Division.

Since pipeline regulation focuses on natural gas, data collection for that commodity is readily available. Information regarding movements of petroleum and other products is more proprietary in nature and is usually inferred from data on production.

Pipelines' share of freight movements in Montana is comparable to the nationwide average of 20 percent. (Statistical Abstract of the U.S.) This share has decreased over the past decade, having experienced a high of about 25 percent in the early 1980s. This share should be taken as only a rough estimate based on the qualified nature of converting pipeline volumes to weights as was discussed previously.

The petroleum transportation system of Montana is based on the gathering of crude and its trunk transportation to processing centers which are mostly located out of state. In 1992, about 18.5 billion barrels were transported within the state of which most was crude. (Montana Oil and Gas Conservation Division) The natural gas transportation system of Montana is based initially on collection at a variety of fields within the state as well as the importation and transshipment of Alberta gas. The product is shipped either directly out of state or is sent to local distribution companies.

- 1,000 barrels of typical refined products = 137.587 tons (average of common refined liquids such as winter gasoline, summer gasoline, no. 6 diesel, and avgas @ appropriate average API).
- 1 million cubic feet = 22.4 tons of natural gas (pure methane) under constant ideal conditions. (Source: Oak Ridge National Laboratory. Center for Transportation Analysis)

Nationally, pipelines are used to transport a variety of bulk commodities grouped into whether their basic states are solids, liquids, or gases. Solids, such as coal slurry and limestone, are usually transported using water or some other liquid. At present there are no pipelines shipping solids in Montana.

## 2. Pipelines in Montana

Liquids and gas pipelines comprise the whole of Montana's pipeline transportation system. The principal liquid commodities are crude and refined oil. Crude includes a range of concentrations and densities while refined petroleum products are more consist in terms of the densities carried. Natural gas comprises shipments transported in a gaseous state.

In the case of commodities other than natural gas, pipelines usually serve as a transportation mode between the location where the gas or liquid is first produced or mined and a location where it undergoes a value added secondary processing. Natural gas which typically is collected in subsurface production fields and transmitted through a series of distribution lines, municipal carriers, and master metered systems to a final consumer. Master meter systems refer distribution systems covering defined sub-municipal areas such as housing and industrial complexes. Very frequently, gas is held in storage during its transmission. Thus the non-gas pipeline systems can be characterized as serving a limited number of origins and destinations while natural gas serves a limited number of origins and a very large number of destinations.

The overall pipeline system in Montana can be subdivided into trunk and grid or gathering systems. Trunk lines refer to transmission of commodities from source areas to storage or to secondary processing. Grid systems refer to distribution to a large number of discrete locations. Gathering systems refer to lower capacity lines collecting the commodity over a broad area. Typically, natural gas transportation involves both trunk and grid systems. Oil pipelines carrier may specialize in providing either type of service or alternatively may operate both trunk and grid lines. Except for some local deliveries, there are no intermodal connections utilized in the pipeline system. Products being shipped by pipeline can conceivably be hauled by rail or truck. However, other modes require that the products be placed into discrete containers rather than the continuous flow of

- Monitoring closely Amtrak's and other agencies plans for passenger rail that could benefit Montana.

## **F. MONTANA PIPELINES**

### **1. Pipelines as a Mode of Transportation**

Pipelines are like other modes of transportation in that they move commodities between origins and destinations. As with other modes, most commodities shipped by pipeline undergo value added processing prior to final consumption. An important difference is that there are no vehicles needed to convey freight. In the case of solids pipelines there is usually a transporting medium present such as water which functions similar to a vehicle. Also pipelines are a fully automated transport mode. This results in a mode where transportation can be continuous and uninterrupted. Pipeline movements are not dependent upon all the variables associated with the movement of vehicles in the other modes.

In many respects pipeline transportation has characteristics similar to electric utility transmissions. The principal difference is that pipelines carry goods have identifiable volume and weight.

Pipeline capacity is dependent upon different variables than other modes. The principal factors are the diameter of the line, the compressibility of the commodity, and pressure and temperature conditions both inside and outside the pipe. Thus the capacity of a specific route in the pipeline system will vary by commodity characteristics and time of year.

Pipeline usage is typically measured in volume rather than weight which is the common measurement in other modes. Petroleum products are measured in barrels and the other common commodity, natural gas, is measured in millions of cubic feet. Conversion of the volume measurements to weight is dependent upon the compressibility, pressure, and temperature conditions noted before as wells as the nature of the unique characteristics of each sub-classification of the products. The following provides some approximate conversions that are used under theoretically ideal conditions within pipelines and under average ambient atmospheric conditions:

- 1,000 barrels of typical crude (Montana Sour) products = 159.537 tons  
@ 23.6 American Petroleum Institute specific gravity measure (API).



- Ensuring that Montana's interests are represented in any decision-making affecting changes to passenger rail service in Montana.

**Addressing the impacts of ridership growth.** Recent trends and forecast results indicate that Whitefish and the other stations serving Glacier National Park will experience increased ridership. This is due to population growth and increased tourism-related travel. Improved performance on Amtrak's network could further increase the attractiveness of traveling to Montana by train. Actions which ensure adequate capacity, high quality terminals, and good intermodal connections will enhance the use of this mode and can help reduce the forecast growth in vehicular traffic to the area. These include:

- Ensuring that high traffic stations function as intermodal facilities.
- Addressing the local traffic impacts from boardings and deboardings at high growth stations.
- Coordinating public transportation schedules and services with Amtrak schedules.

**Encouraging the use of passenger rail for visitors from out of state and by Montanans.** Travel demand for all modes in Montana is highly seasonal. Encouraging visitors to arrive by rail could contribute to a reduction in the rate of traffic growth in northwest Montana. Actions that could support this include:

- Promoting Amtrak as a travel option for visiting Glacier National Park.
- Improving stations and intermodal connections to enhance the attractiveness of rail and reduce the need to rent a car to visit the Park.
- Coordinating with the National Park Service and their plans for traffic management in the Park.

**Representing Montana's interests in national decisions affecting passenger rail service within and through Montana.** Any decision-making concerning changes to existing service levels or the introduction of new service to Montana will be made at the national level. There is increased interest nationally in passenger rail that could provide opportunities for Montana over the next twenty years. Actions to ensure that Montana's interests are addressed in any decision-making about new passenger rail service include:

- Ensuring Montana interests are addressed in national decision-making.



was slightly lower than the northern Empire Builder, it was determined that service consolidation met Amtrak's overall business needs. Therefore, Amtrak stopped serving the route and increased the frequency of service on the northern route to daily east-bound and west-bound service. Amtrak's route consolidation resulted in lost service to Glendive, Miles City, Forsyth, Billings, Livingston, Bozeman, Butte, Deer Lodge, Missoula, and Paradise.

Reintroduction of Amtrak on a southern route is of interest to many of the communities on this route and several studies have investigated the feasibility. Any decisions about future service will not be based on serving Montana because the primary market served is passengers travelling between Chicago and Washington and Oregon states. An additional route through Montana would serve the state well but do little to increase the market served in Chicago or on the west coast. In addition, there is a concern that additional service would adversely impact service provided by the Empire Builder. When service through Montana was consolidated in 1979 the southern Montana communities had greater access to alternative modes of travel such as the interstate highway system, interstate bus service, and airline services. These alternate modes are not readily available in communities along the northern route.

There are large financial constraints to the reintroduction of Amtrak service. For example, Amtrak analysis determined that operation of a southern route would increase the annual federal operating subsidy to Amtrak between \$12.6 and \$15.3 million (Amtrak, July 1992). This estimate does not include any capital improvements that might be required to the track, stations, and other facilities.

## 5. Planning For Passenger Rail In Montana

Based on the analysis of the passenger rail mode in Montana, following are the key threats and opportunities addressed in TranPlan 21.

**Preserving existing service levels.** Ridership trends indicate that a number of the communities currently served will continue to have low and/or decreasing numbers of boardings and deboardings. Actions which can increase the utilization of these stations offer the most feasible approach for preserving service. These include:

- Promoting the use of Amtrak through increasing awareness of the service and publicity materials.
- Improving intermodal connectivity through schedule coordination, signage, and the provision of public transportation to Amtrak stations.
- Improving stations and associated facilities such as parking.

**Exhibit IV-42**  
**Projected Passenger Rail Ridership Forecasts in Montana**  
**(Amtrak Empire Builder), 1993 to 2015**

Station	1993 Ridership	2015 Ridership	1993 - 2015 Change	1993 - 2015 Percent Change
Browning	1511	1658	147	9.7
Belton	5616	7263	1647	-8.3
Cut Bank	1962	2153	191	9.7
Essex	2749	3555	806	-8.3
Glasgow	5755	5275	-480	-8.3
Glacier Park	11976	13144	1168	9.8
Havre	15734	16203	469	3.0
Libby	4072	4400	328	8.1
Malta	3109	3164	55	1.8
Shelby	14282	14177	-105	-0.7
Whitefish	63391	81984	18593	29.3
Wolf Point	8428	8513	85	1.0
State	138585	161590	23005	16.6

Source: Calculated by Dye Management Group, Inc. based on data from the National Railroad Passenger Corporation and National Planning Association Data Services.

The forecasts indicate that many of the stations in eastern Montana will experience a reduction in use over the next twenty years. This will make service to these stations less economical for Amtrak and presents a cause for concern. In contrast, the stations that are expected to experience the greatest passenger growth will become larger trip generators creating the need for improved intermodal connections through automobile access, parking, signage, coordination with local transit and intercity bus and in some cases the improvement to station facilities.

There is citizen interest in having Amtrak service available in the state's major population centers which have not had passenger rail service for 15 years. Montana used to have passenger rail along a southern route, 1979 was the last year that passenger rail was available in the southern portion of the state on the North Coast Hiawatha. While fifteen years ago ridership on the southern route

## 4. Future Conditions

The future level of demand for passenger rail services in Montana will depend upon population growth, propensity to travel to Amtrak destinations, and the attractiveness of passenger rail in comparison to other modes. The level of passenger rail service will be determined by decisions made by Amtrak, many of which will be affected by the fact that Montana destinations are a small proportion of the east-west travel market across the northern United States. In fact, in December of 1994 Amtrak announced plans to reduce this service to 4 days a week.

**Demand for passenger rail.** Amtrak does not perform forecasts of travel demand for Montana. Therefore, a simple forecasting technique based on population forecasts and historic trends in ridership per capita was developed to forecast ridership per station for 2015. Two alternative forecasting approaches were developed, the more conservative forecasts are included in this section. These forecasts apply 1993 ridership per capita rates to a forecast 2015 population. (The forecasting methodology and assumptions are described in Appendix D). The results are presented in Exhibit IV-42.

Statewide, Amtrak ridership is forecast to grow 16.6 percent statewide by 2015, an increase in ridership of 23,000. However, almost 19,000 of this increase is forecast for Whitefish alone. Ridership at many stations in eastern Montana is expected to be constant or decline.

The forecasts assume a continuation in the current levels of rail use per person at the existing level of service. They reflect the current use of rail for tourism.

**Service provision, supply.** Amtrak is a federally subsidized, nonprofit corporation that has provided intercity passenger service within and through Montana since it was created by Congress in 1971. Future service levels in Montana will be affected by national policy decisions concerning Amtrak funding and the organizational and business decisions made by Amtrak for serving the east-west interstate passenger travel market.



### 3. Level of Service

The availability of passenger rail service, intermodal connections, and the frequency of the service, are used as performance measures to describe the level of passenger rail service available to Montanans.

**Frequency of service.** Amtrak provides daily east-bound and west-bound service to each of the 12 Montana stations. With the exception of Libby, all stops are between 6:50 a.m. and 9:40 p.m. (Amtrak Schedule, May 1994). Libby however, has a scheduled west-bound stop at 11:25 p.m. and an east-bound stop at 4:48 a.m. both times that are not conducive to travel.

**Availability of Service.** Passenger rail serves the less populated areas of Montana. Exhibit IV-41, shows the proportion of Montana's population that lives in a county with an Amtrak station, or in a neighboring county. By this measure, since 1980 there has been little change in the proportion of the state's population with access to passenger rail, it has remained at approximately 23 percent. Assuming the same Amtrak service levels over the next twenty years, there will be no change in the proportion of Montana's population served.

**Exhibit IV-41**  
**Montana Population Served by Amtrak, 1980 to 2015**

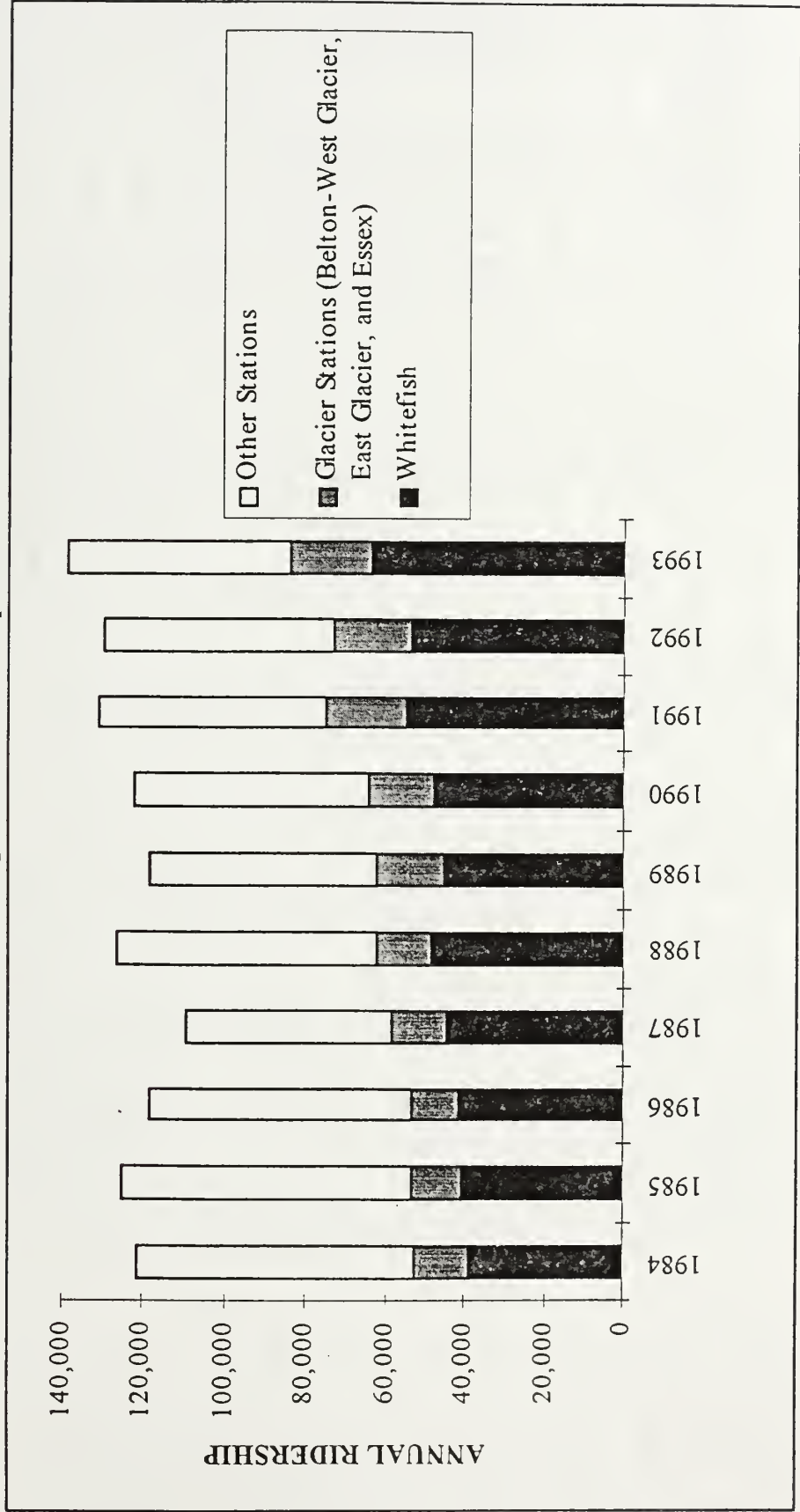
	1980	1990	1993	2015
State Population	786,690	799,065	827,300	956,200
Population Served	178,934	182,487	187,800	214,900
Percent of Population Served	22.8	22.8	22.7	22.5

Sources: U.S. Census of Population and Housing. Forecast data from National Planning Association Data Services, National Railroad Passenger Corporation.

**Intermodal connections.** The ability to make intermodal connections is an important element of the overall level of service for a given mode. For most Montanans the automobile is the only option for connecting with passenger rail. There are limited options for using intercity bus service to access stations in Great Falls and Shelby, however, schedule coordination is difficult for the bus companies because of Amtrak's schedule.



**Exhibit IV-40**  
**Montana Passenger Rail Ridership 1984 to 1993**



Source: National Railroad Passenger Corporation, Government Affairs Department

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**Exhibit IV-39 - Montana Passenger Rail (Amtrak Empire Builder)  
 Fiscal Year Ridership 1984-1993**

Station	1984	1985	1986	1988	1989	1990	1991	1992	1993	1984-1993 Change	1984-1993 % Change
Browning	1,795	1,779	2,227	2,135	3,383	1,222	1,505	922	1,511	-284	-15.8
Belton - West Glacier	3,952	3,920	3,781	4,211	3,908	4,105	3,898	5,335	5,616	1,664	42.1
Cut Bank	3,437	3,682	3,167	3,557	2,647	2,509	2,315	2,433	1,962	-1,475	-42.9
Essex	no service	no service	648	1,457	2,189	2,575	2,221	2,788	2,749	2,749	100.0
Glasgow	8,651	8,447	7,687	6,851	6,617	6,212	6,089	6,412	5,755	-2,896	-33.5
Glacier Park	10,375	8,825	7,629	8,108	7,484	11,199	10,054	13,259	11,976	1,601	15.4
Havre	22,087	20,487	19,072	17,419	18,650	16,614	17,441	16,560	15,734	-6,353	-28.8
Libby	4,484	4,131	4,292	4,728	4,286	4,009	3,686	3,440	4,072	-412	-9.2
Malta	4,424	4,149	3,837	3,381	3,332	3,327	3,547	3,425	3,109	-1,315	-29.7
Shelby	11,078	11,331	12,225	11,709	13,267	12,407	13,773	13,183	14,282	3,204	28.9
Whitefish	38,745	40,418	41,168	44,788	48,485	44,995	47,770	54,532	63,391	24,646	63.6
Wolf Point	12,475	18,404	12,791	11,312	12,156	9,470	9,194	8,612	8,428	-4,047	-32.4
State Total	121,503	125,573	118,524	119,656	126,407	118,308	122,041	131,226	129,867	17,082	14.1

Source: National Railroad Passenger Corporation, Government Affairs Department.

Stumpton Historical Society of Whitefish, and the other stations are owned by Burlington Northern.

In the ten years from 1984 through 1993 Amtrak ridership in Montana increased by 14 percent. Ridership has risen markedly at Whitefish, East Glacier Park, Essex, and Belton-West Glacier stations. This is due to increased use of rail to access summer and winter tourist destinations and the growth in population in these areas. Stations further east, at Havre, Malta, Glasgow, and Wolf Point have experienced an overall decrease in boardings and deboardings.

Amtrak's marketing affecting Montana focusses less on competing with air, highway and bus travel, and more on the discretionary travel and tourism markets. This is likely to continue. For communities in northeastern Montana passenger rail provides the only east-west travel option other than the private automobile.

## **2. Ridership Trends**

Amtrak ridership, measured as a total of boardings and deboardings, increased statewide between 1984 and 1993 by nearly 17,000 a growth of some 14 percent. While statewide ridership has been fairly stable, there have been large changes at the individual stations as shown in Exhibit IV-39

Over the past five years, 1989 to 1993, Amtrak ridership in Montana increased faster than during the preceding five year period, 1984 to 1988 period. There was a statewide ridership decrease of 3 percent between 1984 and 1989, whereas there was a 17 percent increase between 1989 and 1993.

The majority of the ridership increase is through the Whitefish station and other stations serving the Glacier National Park area (East Glacier Park, Essex, and Belton-West Glacier). This is illustrated in Exhibit IV-40. Boardings and deboardings at Whitefish and the Glacier National Park associated stations increased by 30,660 between 1984 and 1993. The largest portion was the growth in ridership at Whitefish, from 38,745 in 1984, to 63,391 passengers in 1993, this accounted for more than 100 percent of the state's total ridership increase. Excluding Whitefish and Glacier National Park, there was a decrease of 13,578 boardings and deboardings statewide between 1984 and 1993.

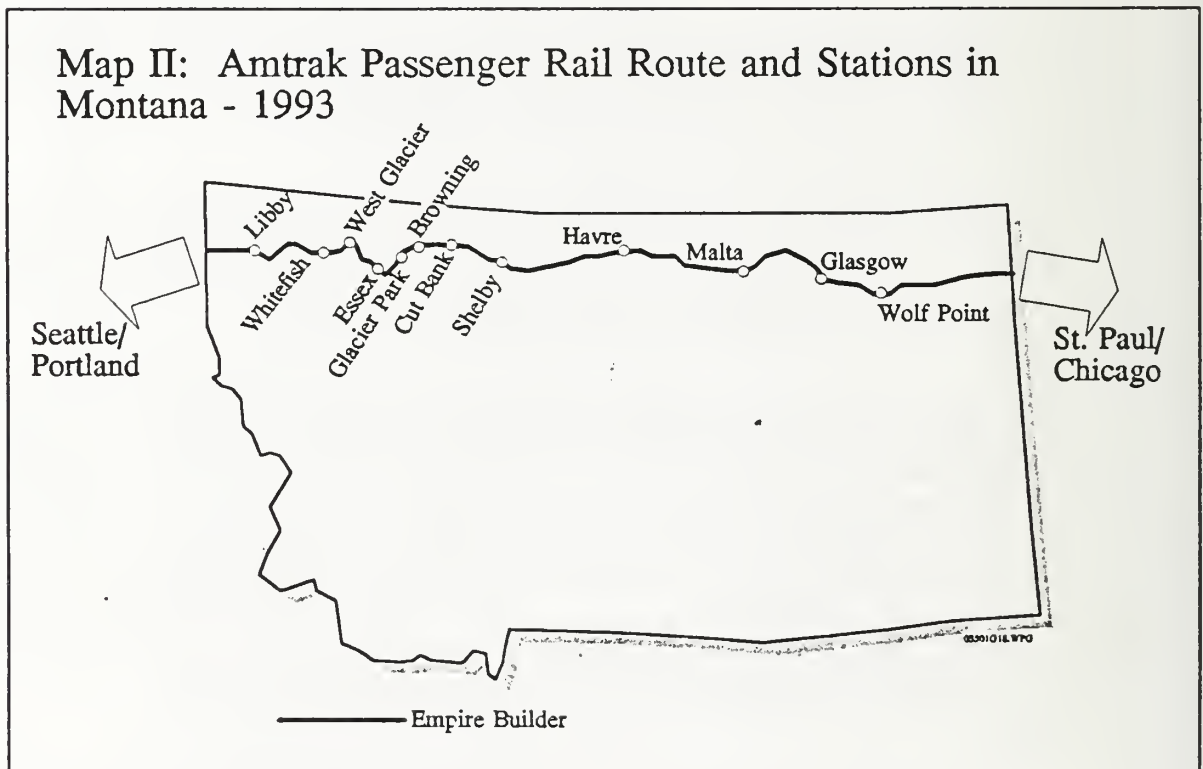
There is considerable seasonal variation in rail ridership in Montana. It peaks during the July and August, tourism and travel months. However, variations exist at particular stations. For example, Whitefish is a tourism and recreation destination during the winter months due to its proximity to the Big Mountain ski area. Similarly, the East Glacier Park, Essex, and Belton-West Glacier stops attract the most traffic during summer months. Overall, the lowest statewide ridership is usually recorded in October and April (National Railroad Passenger Corporation, boardings and deboardings in Montana).

## E. PASSENGER RAIL IN MONTANA

### 1. Passenger Rail Today

Passenger rail service in Montana is provided by the National Railroad Passenger Corporation (Amtrak) across the northern portion of the state. The Amtrak service, the "Empire Builder" originates in Chicago, Illinois and parallels U.S. highway 2 through most of the state and terminates in Seattle. There are 12 stops in Montana, each with daily east-bound and west-bound service. Exhibit IV-38, shows the passenger rail system today in Montana. In December of 1994 Amtrak announced plans to reduce this service to 4 days a week.

Exhibit IV-38  
Amtrak Passenger Rail Route and Stations in Montana - 1993



There are Amtrak stations at Browning, Belton-West Glacier, Cut Bank, Essex, Glasgow, Glacier Park, Havre, Libby, Malta, Shelby, Whitefish, and Wolf Point. There is no agent at Browning and Essex is a flag stop. Belton-West Glacier station is owned by the National Park Service, Whitefish station is owned by



The railroad industry expects there to be an increase in the intermodal shipment of freight. Recent evidence supports this. Nationally, there has been an increase in intermodal activity. This is expected to continue in the future.

- **Provision of railroad services**

Freight rail service is provided exclusively by the private sector in Montana. The provision of service of the next twenty years will depend upon the demand for service and changes in the organization of the railroad industry. The major railroads are in the process of merging. The implications for service in Montana are not clear at present. It may well improve north south service.

There are no branchlines that are currently threatened with abandonment. In general, abandonments occur where there is insufficient traffic to cover the operating and maintenance costs. However there is no guarantee that the situation will not change in the future.

## **5. Planning for Freight Rail**

Based on the analysis of the trends affecting freight rail in Montana and the key issues analyzed in the intermodal freight mobility paper, following are the long range threats and opportunities addressed by TranPlan 21.

**Tracking developments in the railroad industry that can effect Montana.** The state has no direct role in the provision or regulation of rail service in Montana. However, the state has an interest in the availability of an efficient rail infrastructure that will ensure that the state's basic industries have competitively priced access to the national and international market. Therefore it is important for the state to track developments in the rail industry to ensure that Montana's interests are not adversely impacted.

**Facilitating the preservation of branchlines.** Once rail branchlines are abandoned, the use of the right of way for rail is likely to be permanently lost. There is a role for government to work with the mainline and shortline operators to remove any barriers to branchline preservation by the private sector.

**Improving access to intermodal facilities and stations.** Intermodal shipments are expected to increase. High volume stations will generate and attract truck trips which need to be accommodated on the highway system. To address these needs, it will be necessary to consider the roadway connections irrespective of functional classification and jurisdictional responsibility to ensure effective intermodal connections.

Idaho	11	57	46	418.2%
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Source: Federal Railroad Administration, Office of Public Affairs. August, 1994.

## 4. Future Conditions

Following discusses the key factors affecting the demand for freight rail and the provision of railroad service in Montana.

### ● Future Demand

Future demand for freight rail will be centered upon the shipment of bulk commodities. As described in Section II, Social and Economic Trends, Montana's basic industries will continue to generate the demand for the shipment of bulk commodities out of the state. These industries are not expected to grow greatly but they will continue to be a major component of the Montana economy.

For example, grain will remain a major component of Montana freight, 90 percent of grain is now shipped by rail. Production is not expected to increase greatly (Montana Agricultural Statistics Service). Montana agriculture, forestry, and mining industries are expected to increase their output only 2.29 percent over 1990 levels by 2010 (National Planning Association Data Services). Therefore, agricultural demand for rail will likely remain relatively constant well into the future.

The lumber industry has traditionally been heavily reliant upon freight rail, yet this may change considerably in the future. Wood offerings from national forests are declining and will continue to do so for the next several years. Therefore, the volume of freight produced by lumber and wood related industries will probably decline. Moreover, the source of raw lumber may shift from the western region to central and eastern counties (U.S. Bureau of Economic Analysis). This may present challenges in matching the resource with the means of transport.

Coal reserves in eastern Montana are estimated to exceed 50 billion tons. In 1991 the Burlington Northern Railroad shipped 36 million tons at an average pace of 8.3 trains per day. The future of freight rail with respect to coal appears to be healthy, yet markets external to Montana will determine the level of coal traffic and its profitability. Therefore, coal traffic leaving Montana could fluctuate considerably because demand is market driven. However, there will likely be a relatively stable level of coal traffic, in the eastern portion of the state, well into the future. Coal can be burnt in Montana and shipped as electricity.

**c. Track speed.**

A good indicator of freight rail performance and competitiveness is the dependability and speed of the system. Although most freight rail shipments consist of low value bulk commodities, the capacity to deliver in a timely fashion is important. Most main lines in the state (43.6 percent) are speed rated at 60-79 miles per hour. Another 940 miles (28.7 percent) are rated for speeds between 40 and 49 miles per hour. These routes serve as the backbone of the system and pick up traffic from branch lines. Most of Montana's rail branch lines are rated between 10 and 35 miles per hour: 207.7 miles (6.29 percent) are rated at 30-35, 649 miles (19.7 percent) at 25, and 66.7 (2 percent) miles at 10 miles per hour (1993 Montana State Rail Plan Update).

Main line speed ratings generally appear adequate. However, although branch lines carry a smaller amount of traffic, low speed ratings may deter some shipments to trucks. Low branch line speeds limit the potential for competition between truck and rail for intrastate shipping of certain goods. They increase the likelihood that intermodal and more time sensitive rail shipments will be directed to mainlines stations and then broken down for shipment by truck to their ultimate destinations across the state.

**d. Safety.**

Accident trends indicate that the safety of freight rail has improved. Exhibit IV-37 contrasts rail grade crossing accidents between 1980 and 1991, excluding derailments, in Montana with neighboring states. The number of accidents has decreased considerably, with a 25 percent decline during the 11 year period.

**Exhibit IV-37**  
**Rail Grade Crossing Accidents (excluding derailments), 1980 and 1991**

State	1980 Accidents	1991 Accidents	Change, 1980-1991	Percent Change, 1980-1991
Montana	24	18	-6	-25.0%
North Dakota	19	15	-4	-21.1%
South Dakota	7	26	19	271.4%
Wyoming	36	5	-31	-86.1%

## Exhibit IV-36 Montana's Principal Intermodal Facilities.

Exhibit III: Montana's Freight Rail Transfer Facilities



Legend:

- Trailer on flat car/container on flat car (TOFC/COFC).
- Interchange point.
- △ Coal transfer facility.
- ☆ Lumber reload.

Source: Freight Rail Guide?

b. Cost of service, freight rates.

The Burlington Northern Railroad<sup>\*</sup> establishes the freight rates for commodities shipped out of the state. Burlington Northern is in a dominant position in Montana with little competition for hauling bulk commodities except from the limited single track branchline connection to the Union Pacific Railroad from Silver Bow and from the trucking industry.



In 1991, there were a further 29 freight rail stations that shipped and received between 500 and 999 carloads each. The majority of these "smaller" stations and stops existed primarily for the purpose of moving grain, although there were several others dominated by lumber products and miscellaneous shipments. Regardless of the principle commodity shipped, these stops and stations were important to the economies of their communities municipalities.

**d. Intermodal Freight Rail**

Intermodal freight rail in Montana involves the transfer of trailers onto flat cars, containers onto flat cars, the reload of lumber from trucks onto rail cars, and the transfer of grain from trucks to hopper cars. The vast majority of trailer on flat car and container on flat car intermodal transfers take place at the Port of Montana in Butte, the Northern Express Transportation Authority, in Shelby, and at Burlington Northern's intermodal terminals in Billings, Shelby, and Missoula. Grain transfer takes place at hundreds of terminals. Both the Port of Montana and the Northern Express Transportation Authority have experienced large increases in intermodal traffic during the past three years. Burlington Northern's facilities are also active, with approximately 900 carloads in and out each month at Billings, and 500 in and out at Shelby. In Missoula the numbers are smaller with between 50 and 100 carloads in and out each month.

The location of the major intermodal facilities in Montana is shown in Exhibit IV-36.

**3. Level of Service**

The availability of freight rail, the cost of the service, speed, and safety are all performance measures that describe the level of freight rail service in Montana.

**a. Availability of freight rail service.**

Despite the loss of branchlines most communities in Montana have access to the rail system. The availability of service is largely determined by the economics of the railroad industry. In those parts of the state where service has been lost commodities now are hauled further to grain elevators or rail stations. This increases the transportation costs for the agricultural sector of the economy.

Station	Originated carloads	Total carloads	Percent grain	Grain capacity	Principal Commodities
Havre	2,498	3,335	74.2	1,711	Grain, petroleum products
Kalispell	2,817	3,043	9.8	760	Lumber, plywood
Kershaw	1,054	1,056	99.8	550	Grain, fertilizer
Laurel	3,712	4,317	1.0	220	Asphalt, liquid propane gas
Lewistown	1,036	1,059	74.6	622	Grain, fertilizer
Libby	4,219	4,415	0.0	0	Pulpmill, lumber
Livingston	1,062	1,220	7.5	85	Lumber, chips
Missoula	1,920	2,286	0.0	0	Particle board, chemicals
Moccasin&CMR	2,181	2,214	98.1	436	Grain, fertilizer
Olney	2,025	2,025	0.0	0	Particle board, lumber
Plentywood	1,028	1,033	99.6	1,084	Grain, fertilizer
Rudyard	2,146	2,147	99.9	2,700	Grain, fertilizer
Schilling	9,133	14,357	0.0	0	Fiber Board, waste
Shelby & TOFC	2,223	5,950	24.0	3,525	Grain, Intermodal Domestic
Sidney	3,660	4,251	10.3	1,181	Bulk foods, petroleum products
Silver Bow	4,342	10,501	not available	0	not available
Sweetgrass	5,253	5,456	3.1	90	Petroleum products, fertilizer
Three Forks	1,935	2,008	4.3	348	Talc, grain
Townsend	1,990	2,036	6.7	180	Lime, lumber
Trident	2,167	3,179	0.0	0	Cement, coal
Warren	2,187	2,228	0.0	0	Glass Mince
Wolf Point	1,426	1,433	99.5	2,883	Grain, fertilizer

Note: Grain Capacity measured in thousands of bushels.  
Sources: Grain Elevator Directory 1993. Burlington Northern Railroad.  
Official Railway Guide, Freight Service Edition. June/July 1993.  
Other data collected by MDT from independent rail operators.

Schilling, Silver Bow, and Billings were the busiest freight rail stations in the state, each handled over 10,000 originating and terminating carloads of commodities such as asphalt, fiberboard, and grain. As evident with the stations in Schilling (near Missoula), Silver Bow, and Billings, the most active freight rail stations are located in or near Montana's urbanized areas. In general, these larger stations handled a more diverse array of products and commodities than their smaller (less than 1000 carload) counterparts.

### Exhibit IV-35

#### Freight Rail Stations Handling Over 1,000 Carloads, in 1991

Station	Originated carloads	Total carloads	Percent grain	Grain capacity	Principal Commodities
Belgrade	1,207	1,346	30.5	1,070	Lumber, grain
Big Sandy	1,360	1,373	99.1	617	Grain, fertilizer
Billings	7,587	10,087	10.3	2,110	Asphalt, sugar, grain
Bonner	2,129	2,129	0.0	0	Plywood, chips
Brownman Spur	1,199	1,199	0.0	0	Chips, lumber
Butte	not available	2,002	0.0	0	Copper Concentrates
Carter	1,100	1,119	98.3	1,079	Grain, fertilizer
Circle	1,067	1,092	97.7	660	Grain, fertilizer
Columbia Falls	3,146	3,200	0.0	0	Particle board, lumber
Conkelley	2,249	6,882	0.0	0	Aluminum/Non-Ferrous, chemicals
Conrad	3,222	3,284	98.0	1,548	Grain, fertilizer
Cut Bank	2,315	2,352	97.9	1,058	Grain, fertilizer
East Billings	146	1,211	0.0	0	Fuel gas, liquid propane gas
East Helena	848	3,705	0.0	0	Concentrates, lead bar
Eureka	2,203	2,203	0.0	0	Lumber, pulpmill
Fairfield	1,120	1,124	98.9	2,400	Grain, fertilizer
Fort Benton	1,401	1,415	99.0	1,772	Grain, fertilizer
Great Falls	3,410	4,533	48.6	3,222	Grain, fertilizer



As Exhibit IV-34 illustrates, Montana's freight rail industry meets the demands of the state's basic economic sectors. The freight rail market for bulk commodities in Montana has the following segments:

- **Agriculture and related commodities.** This includes: grain, bull food, feeds, fertilizer, flour, farm products, beverages, corn, and soy beans. This accounted for 41 percent of all shipments in 1991.
- **Natural resource and related commodities.** This includes: petroleum, aluminum/nonferrous metals, steel, chemicals, minerals, asphalt, and talc. This accounted for 32 percent of all shipments in 1991.
- **Lumber and related commodities.** This includes: raw lumber, plywood, particle board, pulpmill, and paper. This accounted for 27 percent of all shipments in 1991.
- **Miscellaneous goods.** This includes: glass mince, hazardous waste, construction products, gypsum and other materials. This accounted for 12 percent of all shipments in 1991.

In a special category because of the sheer scale of production and transportation is the shipment of coal from the Powder River Region of Southeast Montana. Several coal mines operate in the area, with Burlington Northern shipping approximately 90 percent of the extracted resource. In 1991, Burlington Northern moved over 36 million tons of coal, averaging 8.3 trains per day directly from the coal fields. The busiest coal stations were located at Colstrip and Decker, where 16.6 million and 15.5 million tons of coal were shipped, respectively (1993 Montana State Rail Plan Update).

The rail system is oriented to transporting these commodities out of the state to markets nationwide. The overwhelming majority of freight rail traffic in Montana originated in the state. Most inbound carloads involve shipment of commodities such as fertilizer for agricultural production.

c. **Freight rail stations**

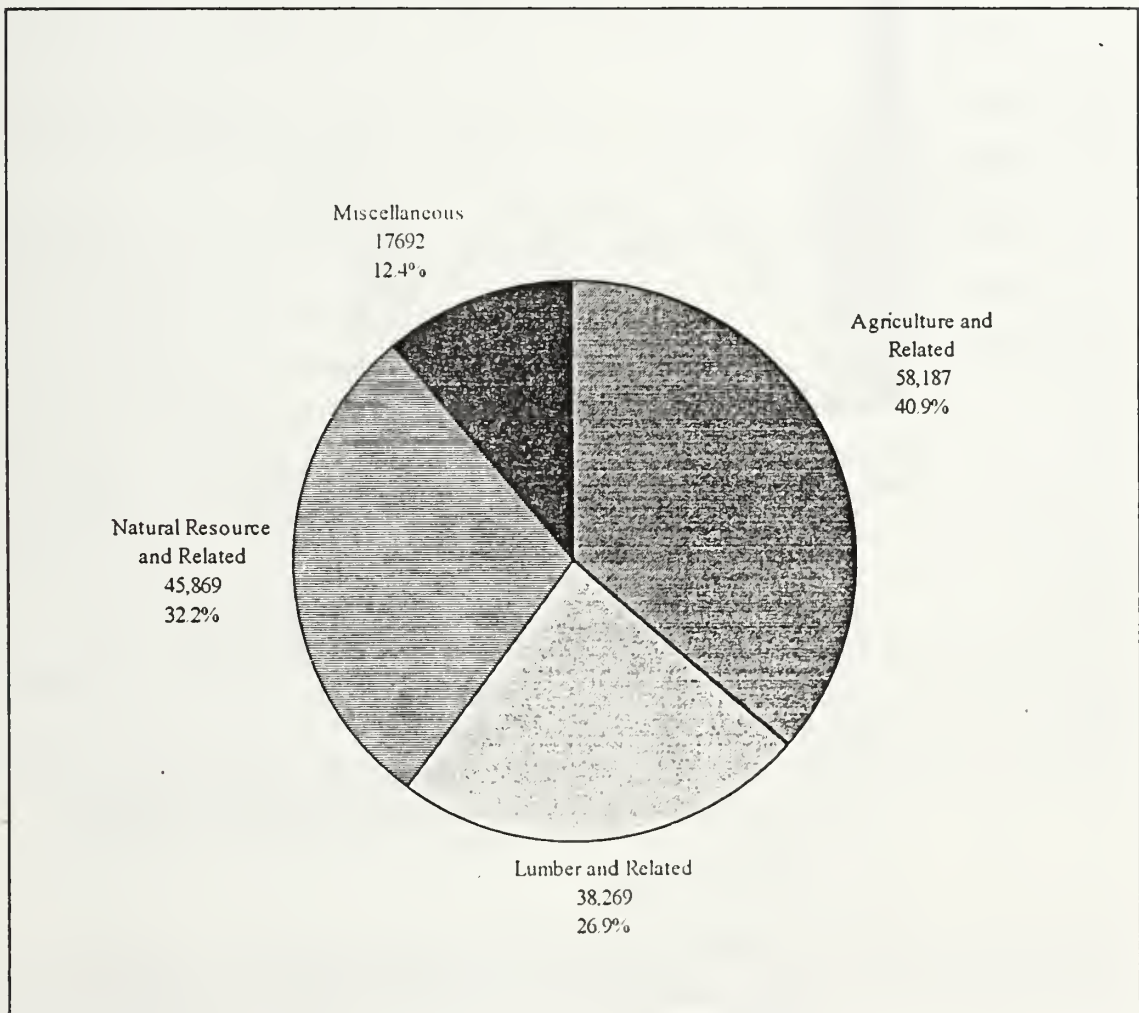
The commodities described above access the freight rail system at many different points across the state. In many cases the commodities are hauled by truck to the rail station or grain elevators, and then are loaded onto rail cars. For the purposes of TranPlan 21, the stations with the highest volumes of commodities passing through them are identified. Exhibit IV-35, lists the 40 freight rail stations (stops) in Montana that generated 1,000 or more non-coal rail-carloads in 1991.



**b. Demand For Freight Rail, Commodities shipped**

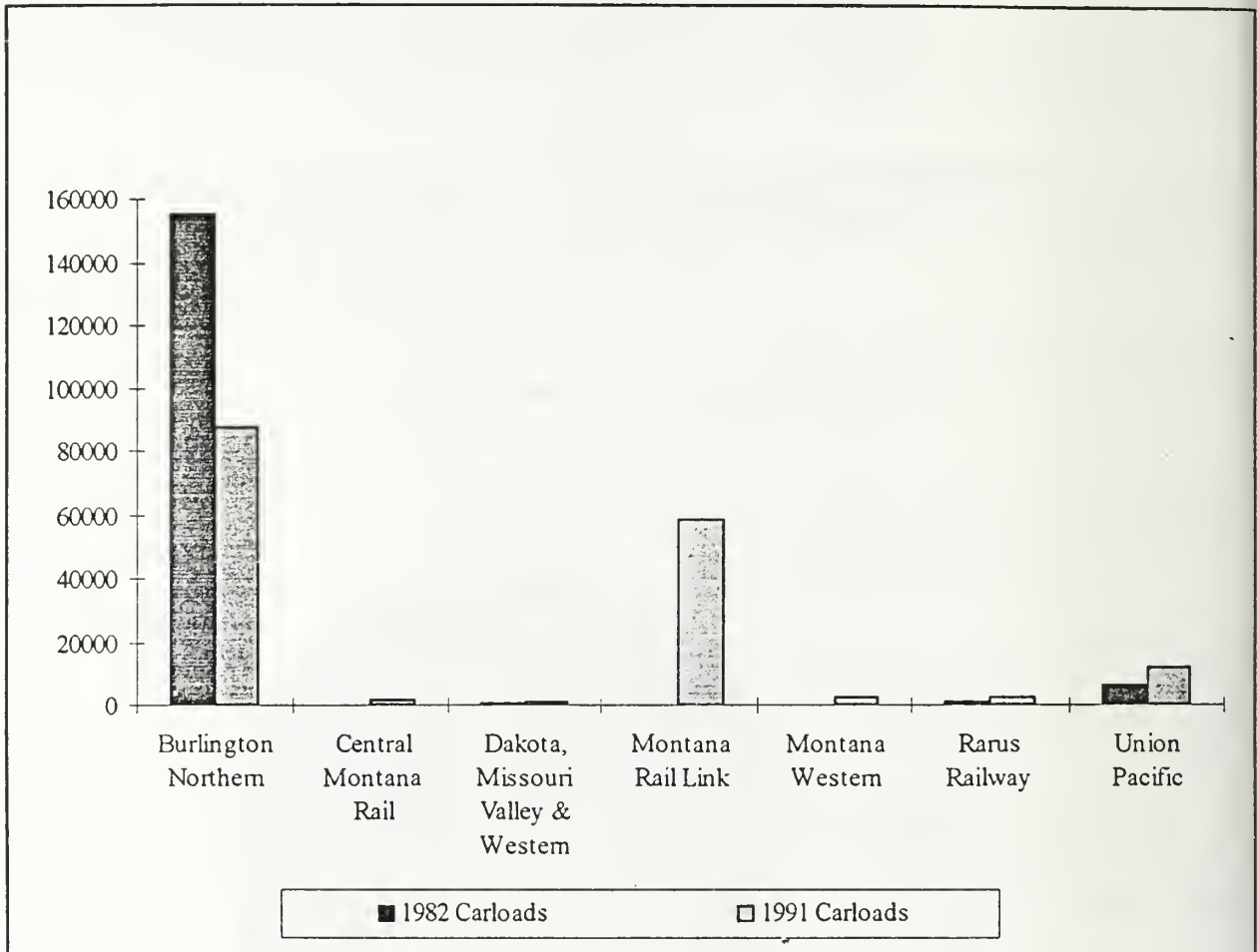
Railroad operators in Montana meet the demands for the shipment of large volumes of coal direct from the coal mines and for the shipment of a variety of other bulk commodities. Exhibit IV-34 shows the breakdown of bulk commodities shipped by rail in 1991.

**Exhibit IV-34:  
Freight Rail Shipments By Commodity, 1991 (Non-Coal)  
(Originating and Terminating Carloads)**



Source: Freight Rail Operators in Montana, 1994

**Exhibit IV-33**  
**Volume of Originating and Terminating Carloads Freight by Railroad,**  
**1982 and 1991**



**2. Freight Rail Trends in Montana**

The following describes recent freight rail trends in Montana.

**a. Miles of Track**

In 1992, there were 3,463 miles of rail track in use in Montana. A decline from over 4800 miles 14 years earlier. The decrease arose from the abandonment of some 1,371 rail miles, primarily by the Milwaukee Railroad and Burlington Northern Railroad.

During the 1980s, almost 1,400 miles of track were abandoned. In other cases, branchlines that were formerly operated by the major railroads now operate as independent shortlines. Communities no longer directly served by rail must now haul their commodities to the nearest transfer facility.

Exhibit IV-32 shows the volumes of originating carloads shipped by the mainline and shortline operators in 1982 and 1991. It is important to note that despite branchline abandonment, there was very little change in the total volume of commodities that were shipped out of state on rail.

### Exhibit IV-32 Volume of Originating Freight by Railroad, 1982 and 1991

Railroad	1991 Originated Carloads	1991 Total	1982 Total	1982-1991 Change
Burlington Northern	73,954	87,499	155,434	-67,935
Central Montana Rail	1,613	1,644	0	1,644
Dakota, Missouri Valley and Western	1,152	1,152	773	379
Montana Rail Link	42,024	58,676	0	58,676
Montana Western	1,851	2,742	0	2,742
Rarus	2,323	2,407	1,407*	1,000
Union Pacific	5,921	12,122	6,199	5,923
State	128,838	166,242	163,813	2,429

\* Note: 1982 data was not available for Rarus Railway, 1983 data is presented.

Sources:     • MDT and Independent Rail Operators.  
                  • 1993 Montana State Rail Plan Update.

The number of carloads shipped by the different railroad operators is also charted in Exhibit IV-33. This illustrates the important role which the shortline operators now play in Montana.

The total annual subsidy provided by the federal government is just over \$3.4 million. Reducing the role of government and the federal budget is the dominant feature in the current federal policy environment. Therefore, Montana will need to ensure that the case for the program continues to be made. In the event that the federal subsidy is removed. The state will need to determine whether it wishes to establish a state-level funding mechanism.

**Establishing working relationships with commercial airlines to preserve existing and facilitate new service.** The services which commercial airlines provide in Montana often represent a small portion of their overall business. Through establishing a working relationship with the airlines it may be possible to facilitate the retention and/or expansion of service through increasing the carrier's understanding of opportunities in Montana, removing any misunderstandings, and helping address any obstacles. One area of interest to many in Montana is direct service into Canada. There is a potential role for state government in helping local airport operators to promote service between Montana and Canada.

## **D. FREIGHT RAIL IN MONTANA**

### **1. Freight Rail Today**

Montana's freight rail system is a key element of Montana's overall transportation system. Montana is served by an extensive network of mainlines and branchlines. There are 69 stations with over 500 carloads inbound and outbound annually.

The primary commodities shipped by rail from the state, in terms of volume, are coal and other bulk commodities such as grain, lumber products, petroleum products, talc, metals, chemicals, and glass mince. More carloads of freight rail originate than terminate in Montana. The demand for freight rail from commodity producers is expected to remain fairly stable in future years.

The Burlington Northern Railroad is the dominant force in Montana's freight rail market. In 1982, Burlington Northern moved more than 155,000 originating and terminating non-coal carloads in the state, accounting for almost 95 percent of the total Montana traffic. Since 1982, restructuring in the railroad industry in Montana gave rise to a number of shortline operators which serve as "connectors" to Burlington Northern's system. This restructuring was extensive, by 1991 Burlington Northern was responsible for only 53 percent of originating and terminating non-coal freight rail movements. Montana Rail Link, a shortline operator that did not exist in 1982, was responsible for over 35 percent of the originating and terminating total non-coal freight traffic in the state by 1991.



is scaling back and letting market forces determine levels of investment. This environment will make it harder to present the case for continued subsidy through the Essential Air Service program.

## **5. Planning for Air Transportation in Montana**

Based on the analysis of air transportation in Montana, following are key long-range threats and opportunities addressed in TranPlan 21.

**Ensuring airport improvement needs are met.** The airports addressed by TranPlan 21 are all included in the National Plan of Integrated Airport Systems and receive federal funding for capital improvements through the Federal Aviation Administration's Airport Improvement Program. This is a grant program and local airport operators apply for funding directly to the Federal Aviation Administration. It will be important to ensure that Montana airports are successful in funding their projects.

Although not included in TranPlan 21, it is important to note that there are limited resources to fund all Montana's general aviation airports. These airports provide a lifeline ensuring access for many communities to emergency medical facilities. Many of the smaller general aviation airports are unable to raise sufficient funds for major capital improvements.

**Improving intermodal connections at airports.** Montana's airports are among the largest generators of intermodal passenger trips in the state. Improving intermodal connections for all modes will be important as passenger volumes increase. Many of Montana's commercial service airports are in close proximity to air passengers' final destination. Ensuring that there are feasible options to access airports other than by car, and for visitors not to have to rent a car could help reduce traffic growth, particularly in the very busy summer months. It is also important to note that as enplanements increase, airports will become large surface transportation trip generators due to the high concentration of employment associated with the businesses located in the airport, further increasing the importance of access.

**Retaining the essential air service subsidy program.** As described earlier, the Essential Air Service program which was created during airline deregulation in 1978, could be reduced after 1997 when the current program funding will be reconsidered. If federal subsidies are reduced or eliminated, central and northeastern Montana could be impacted severely. A loss of air service in these areas would eliminate the one north-south travel alternative to automobile travel and adversely impact the integration of the economy into the state and national economy.

**Supply of air transportation services.** Local airport master plans document the capital improvements necessary to accommodate increased air traffic. The state's airport infrastructure appears to be adequate to accommodate the forecast increase in operations. In no case do projected annual operations through 2010 exceed the design capacities at the primary commercial service airports, as shown in Exhibit IV-31.

**Exhibit IV-31**  
**Forecast Volumes and Capacities at Montana Airports**  
**Through 2010**

Airport	Annual Operation Capacity	2010 Forecast Annual Operations
Billings	350,000	182,000
Bozeman	195,000	64,000
Butte	195,000	26,000
Great Falls	210,000	103,000
Helena	230,000	104,000
Kalispell	195,000	100,000
Missoula	265,000	115,000

Sources: 1989 Montana State Aviation System Plan and 1993 Update.  
Draft Terminal Area Forecasts, Federal Aviation Administration. 1994.

Changes in the organization of the airline industry will continue to affect air transportation service levels in Montana. It is not possible to predict the effects that this will have on service availability in Montana. Recent national trends have resulted in the growth of regional carriers such as Horizon Air which has an extensive service in Montana and the emergence of low cost airlines such as Southwest Airlines that serve point to point markets. It is too early to determine whether or not Frontier Airlines, a low cost carrier, recent entry into the Montana market will be successful.

An issue that may influence Montana's future supply of air transportation service is the vulnerability of the Essential Air Service program funding. If the federal government removes this funding support it could result in Glasgow, Glendive, Havre, Lewistown, Miles City, Sidney, and Wolf Point airports losing commercial air service. These communities would then be served by general aviation and 20 percent of the state's population would lose access to scheduled air service. The current federal policy environment is one in which government

The available forecasts for passenger enplanements at the airports with Essential Air Service subsidies predict a slower growth rate than at primary commercial airports. The slower rate of growth reflects the stagnant or declining population anticipated in many of the communities served.

The total number of current and forecast operations at the Essential Air Service airport and the high activity general aviation airports are shown in Exhibit IV-30.

### Exhibit IV-30 Current and Forecast Annual Airport Operations

Airport	1993 Operations	2003 Operations
<b>Essential Air Service Airports</b>		
Glasgow	21,000	24,000
Glendive	6,000	8,000
Havre	11,000	15,000
Lewistown	15,000	19,000
Miles City	11,000	14,000
Sidney	28,000	29,000
Wolf Point	11,000	13,000
<b>General Aviation Airports</b>		
Chinook	8,000	9,000
Fort Benton	13,000	15,000
Hamilton	12,000	14,000
Kalispell (municipal)	not available	not available
Laurel	12,000	13,000
Libby	11,000	12,000

Source: Montana Aviation System Plan Update.

There are no forecasts available for air freight shipments in Montana. However, it is reasonable to expect that the recent trend increase in air freight shipments will continue. If Montana is successful in promoting economic development through value added manufacturing and agriculture there will be an even larger increase in air freight.



market is not likely to experience the competitive conditions which have reduced fares considerably in other markets. Elsewhere the entry of low fare carriers has induced large volumes of additional enplanements.

#### 4. Future Air Transportation Conditions

The future level of air transportation service in Montana and the demand for air transportation will be determined mainly by factors which are beyond the state's control. The demand for air transportation will be driven by market size which is a function of Montana's population and economy, the cost of air travel, and economic growth nationally. The level of service will be determined by the business decisions the commercial airlines make.

**Demand for air transportation.** Montana's forecast population and economic growth will increase the demand for air transportation. Historic trends show that enplanements have increased with economic and population growth. The available forecasts indicate that air travel demand will continue to experience growth over the next twenty years. Forecasts for enplanement growth developed by the Federal Aviation Administration are provided in Exhibit IV-29.

Kalispell International, Bozeman, Helena, and Billings are expected to experience the most growth by 2010. Other airports will likely grow, but not as significantly. Air traffic is expected to almost double at Helena and nearly triple at Kalispell by 2010.

**Exhibit IV-29**  
**Passenger Enplanement Forecasts - Montana, 1990-2010**

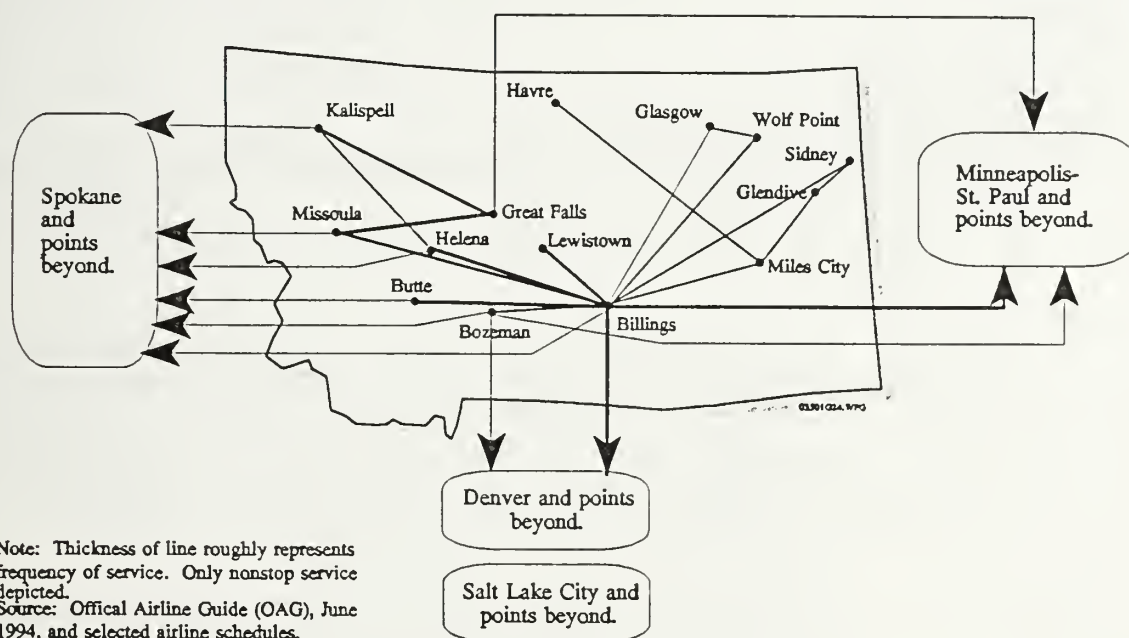
Airport	1993 Enplanements	2010 Enplanements	1993-2010 Percent Change
Billings	303,855	525,000	72.8
Bozeman	174,256	270,000	54.9
Butte	36,742	55,000	49.7
Great Falls	122,376	220,000	79.8
Helena	56,176	104,000	79.8
Kalispell	89,490	251,000	180.5
Missoula	165,154	283,000	71.4
Total	948,049	1,708,000	80.2

Sources: Draft Terminal Area Forecasts. Federal Aviation Administration, 1994. Montana Airport Manager's Association, 1994.



## Exhibit IV-28 Montana's Scheduled Commercial Air Transportation System

### Exhibit II: Montana's Scheduled Commercial Air Transportation System



Within Montana there is service between many of the major cities. The communities with Essential Air Service have access to Billings and from there to the national and international system.

**Frequency of service.** Frequency of service is an important indicator of the level of air transportation service. Although served by smaller equipment, communities such as Helena have four flights a day from Billings and five flights a day to Spokane. There are similar frequent levels of service in Montana's other larger cities.

**Cost of service.** Price is the key factor affecting the demand for air transportation services. This is determined solely by the airlines providing the service. Due to its small size, much of Montana's air transportation

growth is forecast in the parts of the state that are already better served by air transportation.

### Exhibit IV-27 Montana Population Served by Airports with Scheduled Service<sup>1</sup>

Population	1990	1993	2015
State Population	799,065	827,300	956,200
Population Served	655,898	678,800	809,200
Percentage of State Population Served	82.1	82.1	84.6

Sources: 1990 U.S. Census for Governmental Units and National Planning Association Data  
Services population projections.

1. Assumes no change in the number of airports with scheduled commercial service

**Destinations served.** There have been frequent changes in the airlines serving Montana and their schedules in recent years. These changes reflect the impacts in Montana of the restructuring in the airline industry in response to deregulation and the new lower-cost entrants into the industry. These changes have resulted in Montana being served mainly by regional carriers and smaller equipment.

The air transportation industry has experienced great change in recent years and this affects the destinations served from Montana's commercial service airports. Since airline deregulation there have been many changes that have affected Montana. The industry appears to be moving from servicing markets such as Montana solely through hubs to more point to point service, directly linking city pairs. There are frequent changes in the destinations served by non-stop flights from Montana. Exhibit IV-28, provides a snapshot of the destinations served.

Montana has relatively good west, south, and east bound access into the national and international transportation system. Most primary commercial service airports have direct flights to Denver, Colorado; Minneapolis-St. Paul, Minnesota; Spokane, Washington; and Salt Lake City, Utah. There is no direct service between Montana and Canada.

**c. Operations at high activity general aviation airports**

The number of annual operations at the high volume general aviation airports in 1987 and 1993 are shown in Exhibit IV-26. Increased volumes at these airports indicates the need to ensure that there are good intermodal connections and the likelihood of airport capital improvement needs.

**Exhibit IV-26**

**Operations at High Volume General Aviation Airports, 1987 to 1993**

Airport	1987	1993	Percent Change
Chinook	7,525	8,000	6.3
Fort Benton	4,650	13,000	179.6
Hamilton	10,550	12,000	13.7
Kalispell (Municipal)	6,860	not available	not available
Laurel	12,025	12,000	0.2
Libby	4,125	11,000	166.7

Source: 1989 Montana State Aviation System Plan  
1993 Montana State Aviation System Plan Update

**d. Level of Service**

The availability of general aviation services and scheduled commercial air service, the destinations served, the frequency of the service, and the cost all describe the level of scheduled services available in Montana.

**Availability of air service.** In recent years Montanans have experienced a decrease in their air transportation options as major carriers such as Continental have withdrawn or reduced service. However, despite a low population density and small total population, for the time being Montana has good access to commercial air services. As shown in Exhibit IV-27, over 80 percent of Montanans are within a one county distance of an airport with commercial scheduled air services and the remaining 20 percent are almost all within one county of an airport served through the Essential Air Service program. In recent years there has been little change in the population served by air transportation. Assuming no change in the cities served by commercial scheduled service through 2015 there would be a slight increase in the population served. This is because population

**b. Enplanements and air freight at essential air service airports**

Demand for air transportation services provided through the Essential Air Service program increased 14.6 percent between 1986 and 1993. Exhibit IV-25 shows trends in enplanements and air freight shipments for the airports served through the essential air service program. Annual enplanements grew at a faster pace than at the major airports in Montana, while air freight actually decreased. A key element of air freight is dependent upon whether the provider is the contract carrier for the U.S. Postal Service. Passenger enplanements at the airports served through the Essential Air Service averaged 2,382 in 1986 and 2,895 in 1993.

**Exhibit IV-25**  
**Enplanements and Air Freight Trends, 1986 to 1993**  
**Montana Essential Air Service Airports**

Airport	Enplanements			Air Freight (tons)		
	1986	1993	Percent Change, 1986-93	1986	1993	Percent Change, 1986-93
Glasgow	2,555	4,096	60.3	15.0	7.9	-47.3
Glendive	1,532	1,837	19.9	7.6	3.2	-59.5
Havre	1,912	2,640	38.1	12.0	15.7	30.8
Lewistown	540	2,195	306.5	7.3	1.5	-79.5
Miles City	1,667	1,873	12.4	15.0	4.7	-68.7
Sidney	7,662	4,109	-46.4	36.6	7.6	-79.2
Wolf Point	1,808	3,512	94.2	0.4	2.1	425.0
<b>TOTAL</b>	<b>17,676</b>	<b>20,262</b>	<b>14.6</b>	<b>93.9</b>	<b>42.7</b>	<b>-54.5</b>

Sources:

- 1989 Montana State Aviation System Plan.
- Montana Airport Authorities and Managers. July-September, 1994.

There has been especially high growth in enplanements at Lewistown, Glasgow, and Wolf Point.



**Exhibit IV-24**  
**Enplanements and Air Freight Trends, 1986 to 1993**  
**Montana's Primary Commercial Service Airports**

Airport	Enplanements			Air Freight (tons)		
	1986	1993	Percent Change, 1986-93	1986	1993	Percent Change, 1986-93
Billings	324,514	303,855	-6.8	6,211.3	11,087.7	78.5
Bozeman	105,197	174,256	65.6	284.8	370.2	30.0
Butte	28,086	36,742	30.8	282.7	1,079.1	281.7
Great Falls	148,561	122,376	-17.6	1,137.9	1,212.3	6.5
Helena	49,920	56,176	12.5	214.4	637.9	197.5
Kalispell	55,210	89,490	62.1	179.5	534.4	197.7
Missoula	131,180	165,154	25.9	836.4	1,353.7	61.8
TOTAL	842,668	948,049	12.5	9,147.0	16,275.3	77.9

- Sources:
- 1989 Montana State Aviation System Plan.
  - Montana Airport Authorities and Managers. July-August, 1994.

Air freight has grown at a much faster rate than passenger enplanements. The volume of inbound and outbound air freight increased by 78 percent at Montana's primary airports between 1986 and 1993. This increase reflects the increasing volume of high-value freight shipped by air nationally. In general inbound shipments exceed outbound shipments by weight. The largest growth in air freight shipments was at Butte, Kalispell, Helena, and Billings.

A significant proportion of air freight growth can be attributed to the rise of "just in time" manufacturing and an expanding service sector both use air freight services frequently. Another freight generator roughly proportional to population is mail, which is shipped mainly on commercial airlines and is included in the data presented in Exhibits IV-24 and IV-25. The majority of air freight is inbound to Montana, while the air mail is evenly divided. In recent years, air cargo has become a larger component of air freight than mail.

### **3. Air Transportation Trends in Montana**

The key air transportation trends considered are enplanements, air freight operations, and service provision.

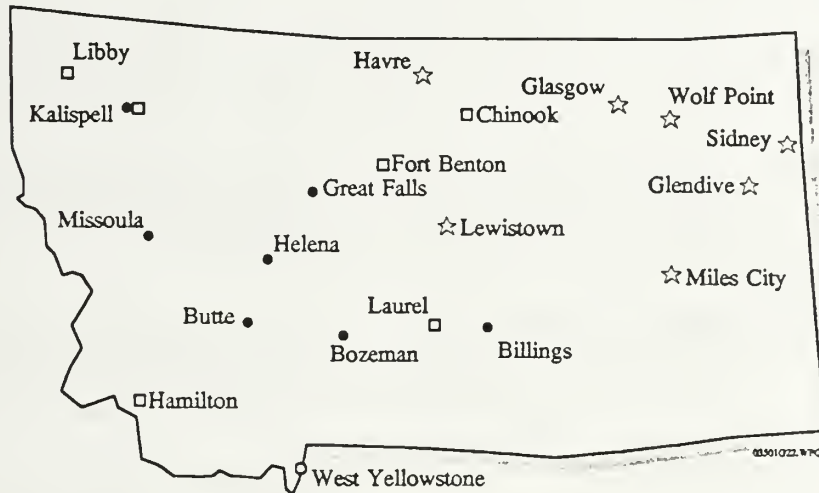
#### **a. Enplanements and air freight at commercial service airports**

Enplanement counts, a measure of revenue-passenger air traffic, describe trends in the demand for passenger services and tons of air-freight describe trends in the demand for air freight service at the airports with scheduled commercial air service.

The growth in passenger enplanements and air freight shipments at Montana's commercial surface airports between 1986 and 1993 are shown in Exhibit IV-24. In common with the rest of the nation, air transportation demand has grown much faster than population in Montana. Passenger enplanements increased at Montana's seven primary commercial airports by 12.5 percent between 1986 and 1993. The majority of this passenger increase took place at Kalispell, Bozeman, and Missoula. Enplanements at Billings fell by 6.8 percent during this period.

## Exhibit IV-23 Montana's Airports

### Exhibit I: Montana's Airports



- Primary Commercial Airport
- ◻ Non-primary Commercial Airport
- ☆ Essential Air Service Airport
- ◻ General Aviation Airport  
(> 8,000 annual operations)

Source: Official Airline Guide (OAG), June 1994, and selected airline schedules.

Air freight has become an important element in the Montana and national economies. Although the total tonnage of freight moved by air is small, expenditures on air freight have been increasing over the last decade and the value of air freight is high. Much air freight is "belly-freight" carried by the commercial carriers. The trend in Montana and the nation is toward more frequent, higher-value and lower-bulk freight shipments. Air freight service, with an average shipment distance of 1,400 miles, is important to companies competing in national and international markets and is a contributing factor in corporate location and expansion decisions.

social development and are eligible for state aviation funding. There are 61 National Plan of Integrated Airport Systems airports and 53 non-National Plan of Integrated Airport Systems airports in the 1993 Montana State Aviation System Plan.

## **2. Airports Addressed in TranPlan 21**

TranPlan 21 addresses a subset of the airports in the Montana State Aviation System Plan. Addressed are all airports with scheduled commercial service and high activity general aviation airports. For the purposes of TranPlan 21 a distinction is made between airports with scheduled commercial air service (primary and non-primary commercial service airports), airports with commercial service subsidized through the essential air service program, and high activity general aviation airports those facilities with 8,000 or more annual operations. These airports are shown in Exhibit IV-23

There are seven "primary" commercial airports located in Billings, Bozeman, Butte, Great Falls, Helena, Kalispell, and Missoula. West Yellowstone is a non-primary commercial airport with seasonal service. Airports are classified as "primary" because they have 10,000 or more annual scheduled commercial service enplanements and secondary when there are over 2,500.

Seven Montana airports have commercial scheduled service funded through federal operating subsidies which supplement commercial revenues. These are provided through the federal Essential Air Service program which funds service to rural airports that would not occur if left entirely to private market forces. The program is currently funded through 1997. Currently service to Glasgow, Glendive, Havre, Lewistown, Miles City, Sidney, and Wolf Point is guaranteed through the Essential Air Service Program. West Yellowstone is eligible for subsidized service but none is provided at present.

There are six general aviation airports with 8,000 or more annual operations in Montana (Federal Aviation Administration 5010 Forms). They include Chinook, Fort Benton, Hamilton, Kalispell Municipal, Laurel, and Libby. When other airports reach 8,000 annual operations they will be included under the system designation criteria.



that reduce pollution. Missoula must be in attainment by the end of 1995. Much of Missoula's air quality problems arise from vehicle emissions. If transit trips replace automobile trips then transit use can contribute to improving air quality. This is recognized in the use of about 25 percent of Montana's Congestion Mitigation and Air Quality funds for transit related projects.

**Developing innovative transit solutions for Montana.** Nationally and in Montana communities recognize the importance of transit and also its limitations. For Montana, developing innovative solutions in the different communities will be important over the long range planning horizon. This is recognized in the transit development plans that are being developed by Montana's providers.

**Evaluating the public role, if any, in intercity bus travel.** As mentioned earlier there is considerable uncertainty in the intercity bus industry. The threat of intercity bus service cutbacks or a complete loss could soon become a reality. Currently, there are areas of the state which are not served by any intercity bus service. In these areas many of the current public providers are not equipped and do not have the resources to provide the service. Determining the nature, if any, of a state role in intercity service is necessary.

## **C. Air Transportation in Montana**

### **1. Air Transportation Today - Overview**

Air transportation plays an important role in Montana because of the state's geography and distance from the nation's major economic and population centers. The ability to connect Montana's rural areas to emergency medical facilities and urban centers and to domestic and international destinations through air transportation is vital for Montana's citizens and businesses.

Air transportation services are provided by the private sector. The services provided are constrained by the need to cover costs to stay in business and meet safety-related regulatory requirements. The public sector is involved through the ownership and operation of airports. Planning the airport system and public funding of capital projects takes place at the local, state, and federal levels. At a national level, the Federal Aviation Authority has designated a system of airports of national significance, the National Plan of Integrated Airport Systems, which is eligible for federal funds.

At the state level, the MDT Aeronautics Division designates a system of airports that are included in the Montana State Aviation System Plan. This includes the system of general aviation airports that perform an essential role in ensuring emergency medical service access, natural resource management, economic and

roads. This involves adopting a multimodal approach at the planning and project development level, especially in the urban areas, that recognizes that transit uses the highway system and the system should be designed to accommodate transit.

**Increasing the attractiveness of transit.** Montana has an existing public transportation infrastructure which is not fully utilized. A key planning and management need is to increase the attractiveness of transit. This is no easy undertaking given the short journey times, limited congestion, and high automobile ownership in the state. Transit becomes more attractive when the costs of an automobile trip become high relative to the use of transit. These costs include the direct financial cost to the traveller, time, safety, reliability and other factors. The avenues open to increasing the attractiveness of transit in Montana predominantly involve improving the image of transit and ensuring that system management is focused on the customers' needs. In many cases, it is neither a planning goal nor is it desirable to increase the cost of automobile use to make transit more attractive. For example, in large urban areas parking policy greatly affects the use of transit. It would be severely detrimental to Montana's central business districts, and in conflict with many communities' desire to avoid sprawl, to limit, or increase the cost of downtown parking.

**Encouraging and supporting the use of transit to ensure that there is a minimum service available.** The benefits of public transportation to the state extend beyond providing modal choices for residents. Public transportation ridership is slowly declining in Montana. Between 1990 and 1993 ridership on all systems dropped 9.9 percent, from 2,180,369 passengers to 1,964,404 passengers. However, social and economic forecasts suggest that there could be increased demand for the service. As the population of the state ages and incomes remain lower than the national average, there will be no other transportation option for some of Montana's residents. Therefore, maintenance of transit capacity in urban areas and access to demand-responsive systems will be especially important for elderly and low income residents.

**Preventing congestion through transportation demand management.** A variety of demand management principles apply to public transportation that help to reduce roadway congestion and improve air quality. If transit is used more in the future, by increasing the number of passengers per vehicle, public transportation can help eliminate some congestion from the state's roadways. This efficiency, if successful, could help ease congestion in some urban areas and contribute to cleaner air.

**Supporting air quality objectives.** There are ten areas in Montana that are in non-attainment for particulate matter. Missoula, Great Falls & Billings are in non-attainment for carbon monoxide. Nonattainment areas are municipalities or regions in which federally defined maximum pollution standards have been violated. As a response, nonattainment areas are required to implement programs

transit providers have the management, marketing, technical, and operation ability to organize, schedule, and maintain vans, vanpool programs and other transportation demand management initiatives aimed at reducing growth in vehicle miles traveled.

Bus transportation is most successful at providing an alternative choice to the car for journey-to-work trips and longer intercity and interstate bus trips. It is in urban areas with traffic congestion, greater density of employment and housing, lack of parking, and longer trip times that transit can be most effective. There is little mode split data available from Montana's urban area plans to indicate the relative role that transit plays. Available evidence suggests that in urban areas, transit serves mainly a different travel market to the automobile.

On a statewide basis and for the urban areas census information provides an indication of mode split. Statewide, approximately one-half of one percent of all trips to work are made by bus. Given that most Montanans live in communities of under 50,000 this is not surprising. However, public transportation's share of all work trips is not significantly higher in the state's three metropolitan areas (those with over 50,000 population) that have urban transit systems. In 1990, in Billings 1.2 percent of work trips were made by bus, which is similar to Missoula (1.5 percent) and Great Falls (1.0 percent). We do not know how many of these trips were made by individuals who chose not to drive. This is probably a small proportion because average journey to work times in these areas are low ranging from 13 minutes in Missoula to just under 15 minutes in Billings. A survey undertaken for Missoula transit indicates that 34 percent of riders have access to a car but chose transit.

There are no systematic data available to indicate the amount of the intercity travel market in which bus travel directly competes with the automobile. Compared to automobile use, intercity trips bus use is low. The intercity bus industry serves many individuals for whom driving is not an option or for whom the purpose of the trip makes driving less desirable.

## **6. Planning For Bus Transportation**

Based on the analysis of public transportation in Montana, following are the key long range threats and opportunities addressed in TranPlan 21.

**Incorporating transit into multimodal planning and transportation system management.** Many of Montana's urban areas that have been experiencing traffic and population growth are developing multimodal transportation plans which aim to address, to the extent possible, new travel demand through other modes and demand management. If these are to be successful then transit will need to be incorporated into planning and management of state and local highways and



quality. Montana's urban areas are expected to grow at a modest rate through 2015.

- **Development patterns and land use trends**

Urban growth is projected to be outstripped by growth in the neighboring suburban counties. Suburban growth will most likely be similar to the trend that has already occurred; decentralization of population and low density development. In the past, transportation planners have had difficulty meeting the needs of this type of development, in Montana and other states. Overall, fitting public transportation into areas designed for automobiles could be a difficult challenge.

Another variable influencing the future of Montana's public transportation system will be the character of new land development. It is difficult for public transit to reach low density areas effectively due to the distance between origins and destinations, which influences system efficiency. This will be an increasingly important issue on fixed route systems as Montana's urban areas continue to grow.

- **Uncertainty in the intercity bus industry**

Intercity bus service faces a precarious future nationally and in Montana. Despite federal efforts in 1982 to improve the viability of intercity busing, service has continued to deteriorate due to automotive, passenger rail, and airline competition (U.S. General Accounting Office, 1992).

- **Increase in the elderly and transit dependent population**

A particular challenge arises out of the fact that low-income and elderly residents are dispersed widely throughout the state. As a result, meeting the transportation needs of these population groups is both logistically difficult and potentially expensive. Montana has a wide range of providers serving a dispersed elderly and disabled population. Demographic analysis indicates that there will be approximately 51,000 Montanans over 75 years old by 2010.

## **5. Multimodal Role of Bus Transportation**

Public transportation will be a key component of any transportation demand management policy and planning in Montana's urban areas. In its broadest sense transportation demand management includes all alternative modes other than the single occupancy vehicle. Increasing the use of transit will be a key component of any area-wide transportation demand management strategies. In addition,



Following discusses the key factors affecting future demand for and the delivery of bus transportation services in Montana.

- **Future demand for transit service**

The population in Montana's urban areas is growing. This will increase the overall transportation market and hence the segment of it which is currently served by transit. This will tend to increase demand. The elderly population is expected to increase which will further increase the demand underserved by public transportation.

There is no reason to expect that there will be lower rates of automobile ownership in Montana in the future. Therefore, the key factor affecting the demand for transit will be the relative attractiveness of transit and the automobile or the cross elasticity of demand between transit and the car. Nationally, evidence suggests that it is only when it is substantially more expensive to the individual to drive, in terms of out of pocket costs, time, and convenience that he/she will choose transit over the car for trips. In Montana, at the community level, there is recognition of, and support for, the air quality, social, and other benefits that arise from transit. Urban area planning that reflects this desire, if successful could increase the demand for transit. The extent of this increase will depend upon local circumstances.

Increasing transit use will require highly successful planning, transit system management, and community support. As described in Section II, Economic, Environmental, and Social Considerations and Volume IV part E, Public Transportation Policy Paper, Montana's settlement patterns, population density, land use planning, travel characteristics and other factors make it unlikely that transit will be better positioned to compete with the automobile in Montana in the near future. In fact, many trends such as suburban and rural development, and the decline of central business districts are making it more difficult for transit to compete for travel.

- **Delivery of transit services**

The future supply of public transportation in Montana will largely be influenced by the financial condition of each system. A deciding factor influencing this condition will be federal funding. In the current federal funding environment it is unlikely that there will be increases in the funding levels for surface transportation.

Aside from access to federal funding, the future supply of public transportation will be influenced by population growth, congestion, and air

**Exhibit IV-22**  
**Selected Transit System Performance Measures, 1990 and 1993**

System	Operating Costs Per Passenger		Operating Costs Per Mile		Riders Per Mile	
	1990	1993	1990	1993	1990	1993
<b>Urban Transit</b>						
Great Falls Transit District	2.26	2.92	2.55	2.73	1.1	0.9
METropolitan Transit (Billings)	1.80	2.48	2.42	2.66	1.3	1.1
Mountain Line Transit (Missoula)	2.44	3.29	1.83	2.61	0.8	0.8
Urban Transit - Average	2.08	2.83	2.24	2.66	1.1	0.9
<b>Rural Transit</b>						
Area IX Agency on Aging (Eagle Transit)	3.44	3.91	1.46	1.90	0.4	0.5
Big Dry Transit (Garfield County Council on Aging)	3.58	5.63	1.38	1.54	0.4	0.3
Blackfeet Transit	4.80	3.60	1.27	2.16	0.3	0.6
Butte-Silver Bow	1.75	2.43	2.14	2.67	1.2	1.1
City of Helena Dial-A-Ride	4.08	5.47	2.64	3.07	0.6	0.6
Fergus County Council on Aging	Not Funded	2.03	Not Funded	1.84	0.7	0.9
Fort Peck Transportation System	9.33	7.17	2.13	1.81	0.2	0.3
Powder River County Transportation System	6.26	1.06	1.52	1.32	0.2	1.2
Valley County Council on Aging	2.57	2.89	1.21	1.49	0.5	0.5
(Rural Transit) Average	2.75	3.24	1.80	2.21	0.7	0.7
<b>Elderly and Disabled Service Average</b>	3.03	3.16	1.21	1.00	0.4	0.3

Source: • Section 18 History Records. Montana Department of Transportation.  
 • Section 9 Operators.  
 • Montana Department of Transportation, Transportation Planning Division.

### 3. Public Transportation System Performance

Ridership per service mile, cost per passenger, and cost per service mile provide information about the performance and current operating environment of transit systems in Montana. This information is presented for the urban and rural transit systems in Exhibit IV-22.

Urban transit providers tended have the lowest operating cost per passenger and highest numbers of riders per service mile. In recent years the number of riders per service mile on urban transit systems has fallen from 1.1 in 1990 to 0.9 in 1993. At the same time the cost per service mile and the cost per passenger carried have increased.

The rural transit systems to have widely differing riders per service mile. Rural transit has lower ridership and consequently higher cost per passenger than the urban transit systems. They range from 1.2 in the case of Powder River County Transportation System and 1.1 in the case of Butte-Silver Bow Transit to as low as 0.3 passengers per service mile for Big Dry Transit (in Garfield County) and Fort Peck Transportation System. Rural transit systems have experienced cost increases that have grown faster than the increase in passengers. The average cost per rural transit system passenger was \$2.75 in 1990 by 1993 the cost had increased to \$3.24, an increase of nearly 18 percent.

### 4. Future Conditions

Recent trends indicate a decline in the use of urban transit and a fairly stable use of rural transit. Further, we can conclude that because the volume of all trip making has increased, the proportion of trips made by transit has declined at a faster rate. In assessing future demand for transit it is not a simple matter of forecasting future ridership based upon past trends. Future demand for transit and the future use of transit will, in part, be shaped by the policy goals set for transit, the investment priorities, and a range of other social, environmental, and land use factors that affect the attractiveness of transit to the rider.



These estimates were developed in consultation with bus operators based in Montana.

### Exhibit IV-21 Estimated Intercity Bus Ridership in Montana, 1993

Organization	1993 Approximate Ridership	Base
Greyhound Lines	90,000	Dallas, TX
Rimrock Stages	29,000	Billings, MT
Bitterroot Stages	Not Available	Hamilton, MT
Powder River Transportation and Tours	20,000	Gillette, WY

Source: Intercity Bus Operators. September 1994.

#### b. Availability of Transportation

As described above many communities and areas of Montana have access to a basic, if limited, bus transportation service. The actual hours of service impact the mobility of those without cars. Billings, Great Falls and Missoula transit systems have no service after 7.00 p.m. on weekdays, a more limited Saturday service, and no Sunday service.

In general terms, the availability of transit in Montana has remained relatively stable. The number of vehicles in operation and being supported through federal funds has increased slightly since 1990. Total annual miles traveled by transit vehicles also increased, providing more frequent scheduling and covering a larger service area. Twelve of Montana's providers of transportation services for the elderly and disabled operating in 1993 did not provide services in 1990.

Intercity bus availability in Montana has experienced considerable changes over the past decade. There has been a steady decrease in service availability and service frequencies. Cody Bus Lines and Intermountain Transportation Company are the most recent providers to end service (as of September, 1994). Greyhound Lines, Inc., may well cease operating in Montana as of January 1, 1995. The trend is not all negative, Rimrock Stages has increased services by taking over Intermountain's routes.



**EXHIBIT IV-20**  
**Ridership of Transportation Services**  
**for the Elderly and Disabled, 1990-1993**  
*(continued)*

System	Annual Ridership		Percent Change 1990 to 1993
	1990	1993	
North Valley Senior Center	4,816	1,660	-65.5
Noxon Senior Citizens, Incorporated	1,123	490	-56.4
Parkview Senior Center	4,402	5,839	32.6
Phillips County Council on Aging	3,372	12,940	283.8
Pondera County Council on Aging	29,075	10,769	63.0
Richland County Commission on Aging, Inc.	13,861	8,515	-38.6
Rocky Mountain Development Council	Not in operation	7,377	Not applicable
Roosevelt Memorial	Not in operation	855	Not applicable
Rosebud Community Hospital	Not in operation	504	Not applicable
Special Transportation, Inc.	Not in operation	5,040	Not applicable
Tobacco Valley Senior Citizen Center	267	886	231.8
Wibaux County Nursing Home	369	419	13.6
<b>Total</b>	<b>100,792</b>	<b>127,368</b>	<b>26.4</b>

**LEGEND:**

\* = Began service in 1991.

\*\* = Began service in 1992.

Source: *Performance Report by Organization*. Montana Department of Transportation. (Helena, MT: July, 1994).

**Intercity Bus.** Recent restructuring in the intercity bus industry has made it difficult to obtain information about intercity bus ridership. Estimated ridership on the different providers is outlined in Exhibit IV-21 below.

**Exhibit IV-20**  
**Ridership of Transportation Services**  
**for the Elderly and Disabled, 1990 to 1993**

System	Annual Ridership		Percent Change 1990 to 1993
	1990	1993	
Area VIII Agency on Aging	2,067	11,715	440.6
Big Horn County Council on Aging	11,289	4,795	-57.5
Blackfeet Nursing Home	8,348	6,621	-20.7
Community Memorial Hospital	Not in operation	8	Not applicable
Community Medical Center	Not in operation	1,596	Not applicable
Dawson County Urban Transportation District	Not in operation	5,234	Not applicable
Fallon County Council on Aging	12,114	2,309	-80.9
Golden Years, Incorporated	4,707	2,602	-44.7
Great Falls Senior Center Transportation	8,675	10,743	23.8
Hollowtop Senior Center	Not in operation	7,430	Not applicable
Hospitality House	Not in operation	4,214	Not applicable
Human Resources Development Council, District 12	0	0	0
Judith Basin Senior Citizen Center	Not in operation	249	Not applicable
Kootenai Senior Citizens Insurance	95	2,219	2,235.8
Lake County Council On Aging	Not in operation	978	Not applicable
Liberty County Council on Aging	3,741	2,558	-31.6
Agency on Aging Area II (Musselshell County)	5,377	3,756	-30.2
Native American Senior Center	955	1,589	66.4

### Exhibit IV-19 Rural Transit System Ridership, 1990 to 1993

System	Annual Ridership		Percent Change 1990 to 1993
	1990	1993	
Area IX Agency on Aging, Eagle Transit	37,400	35,948	-3.9
Blackfeet Transit	8,334	18,401	120.8
Butte-Silver Bow Transit	166,616	152,338	-8.6
City of Helena Dial-A-Ride	38,964	33,839	-13.2
Fergus County Council on Aging	16,761	30,830	84.0
Fort Peck Transportation System	17,130	19,522	14.0
Garfield County Council on Aging (Big Dry Transit)	3,397	2,433	-28.5
Powder River County Transportation System	1,447	9,056	525.8
Valley County Council on Aging	22,735	24,074	5.9
Section 18 Total	312,784	326,441	4.4

Source: *Quarterly Report, Section 18 History Records*. Montana Department of Transportation. (Helena, MT: 1994).

There is a large variation in the ridership trends between the different rural transit systems. Blackfeet Transit, Fergus County Council on Aging, and Powder River County Transportation System have all experienced large increases in use over the past four years.

**Transportation for the Elderly and Disabled.** The recent use of transportation services provided for the elderly and disabled are shown in Exhibit IV-20 below.



## 2. Public Transportation Trends

The following describes recent trends in the use of bus transportation, its availability, and the cost of service provision.

### a. Ridership

Ridership provides a measure of the demand for public transportation services as currently provided in Montana. Between 1990 and 1993 ridership on Montana's urban systems declined by 14.5 percent to a statewide total of 1,510,595. Ridership on the rural transit systems increased by 4.4 percent between 1990 and 1993 to an annual total of 326,441 passengers. In recent years there has been a large increase in the use of transportation services for elderly and disabled individuals, between 1990 and 1993 overall ridership increased between 1990 and 1993 by 26.4 percent.

**Urban Transit.** The recent ridership levels on urban transit are shown in Exhibit IV-18.

**Exhibit IV-18**  
**Urban Transit System Ridership, 1990 to 1993**

System	Annual Ridership		Percent Change 1990 to 1993
	1990	1993	
Great Falls Transit District	467,926	408,918	-12.6
Metropolitan Transit (Billings)	859,760	677,062	-21.3
Mountain Line Transit (Missoula)	439,112	424,615	-3.3
<b>Section 9 Total</b>	<b>1,766,798</b>	<b>1,510,595</b>	<b>-14.5</b>

Source: Transit Development Plans and Communication with Transit Providers, August-September, 1994.

**Rural Transit.** The recent ridership levels on rural transit are shown in Exhibit IV-19 below.



**Exhibit IV-17**  
**Providers of Transportation Service for the Elderly and Disabled**  
**Receiving Funding Assistance**  
*(Continued)*

Name	Service Type	Base
Phillips County Council on Aging	Demand-Response	Malta
Pondera County Council on Aging	Demand-Response	Conrad
Richland County Commission on Aging, Inc.	Demand-Response	Sidney
Rocky Boy Health Board-Elders Program	Demand-Response	Rocky Boy Reservation
Rocky Mountain Development Council	Demand-Response	Helena
Roosevelt Memorial	Demand-Response	Culbertson
Rosebud Community Hospital	Demand-Response	Forsyth
Senior Citizens of Liberty County	Demand-Response	Chester
Special Transportation, Inc.	Demand-Response	Billings
Tobacco Valley Senior Citizen Center	Demand-Response	Eureka
West Yellowstone Foundation	Demand-Response	West Yellowstone
Wheatland Memorial Hospital/NH	Demand-Response	Harlowton
Wibaux County Nursing Home	Demand-Response	Wibaux

Sources: *Transportation In Montana.* Montana Department of Transportation, Transportation Planning Division. (Helena, MT: December, 1993.).  
Montana Department of Transportation Staff. August, 1994.

**d. Intercity Bus**

Intercity bus services are provided in Montana by the private sector. In recent years there have been large changes in the intercity bus industry. This change has been particularly great this year. Intermountain Bus Lines has ceased business and there is a very strong possibility that Greyhound Lines, Inc. will not operate in Montana as of January 1, 1995. Many of Intermountain's routes are now operated by Rimrock Trailways which is now the largest operator in the state.

The intercity bus routes currently served are shown on the passenger transportation map.

**Exhibit IV-17**  
**Providers of Transportation Service for the Elderly and Disabled**  
**Receiving Funding Assistance**  
*(Continued)*

Name	Service Type	Base
Dawson County Urban Transportation District	Demand-Response	Glendive
Faith Lutheran home	Demand-Response	Wolf Point
Fallon County Council on Aging	Demand-Response	Baker
Golden Years, Inc.	Demand-Response	Plentywood
Great Falls Senior Center Transportation	Demand-Response	Great Falls
Hollowtop Senior Center	Demand-Response	Pony
Hospitality House	Demand-Response	Big Timber
Hot Springs Senior Center	Demand-Response	Hot Springs
Human Resources Development Council/Galavan Transportation	Demand-Response	Bozeman
Human Resources Council, District #12	Demand-Response	Butte
Judith Basin Senior Citizen Center	Demand-Response	Stanford
Kootenai Senior Citizens Insurance	Demand-Response	Troy
Lake County Council on Aging	Demand-Response	Ronan
Libby Senior Citizens Center	Demand-Response	Libby
Liberty County Council on Aging	Demand-Response	Chester
Missoula Aging Services	Demand-Response	Missoula
Mountain View Medical Center	Demand-Response	White Sulpher Springs
Musselshell County Council on Aging	Demand-Response	Roundup
Native American Senior Center	Demand-Response	Flathead Reservation
North Valley Senior Center	Demand-Response	Columbia Falls
Northern Cheyenne Elderly	Demand-Response	Northern Cheyenne Reservation
Noxon Senior Citizens, Inc.	Demand-Response	Noxon
Parkview Senior Center	Demand-Response	Cut Bank

rural. The program seeks to enhance coordination of federally assisted programs and services in order to encourage the most efficient use of Federal resources and achieve the national goal of improved mobility for elderly persons and persons with disabilities (1992 Federal Transit Administration circular).

There are now more than 75 providers of transportation in Montana that operate vehicles funded through this program. These services are almost exclusively used by the elderly and disabled. There are approximately 40 providers that maintain a policy of public access (Montana Department of Transportation). Federal funds pay 70 percent of all capital and administrative costs, with the remaining 30 percent paid for from unrestricted federal funds, state monies, or local sources.

Exhibit IV-17 lists the providers of transportation services to elderly individuals and disabled individuals that, when space permits, will provide transportation for the public too. These services are provided by non-profit organizations such as senior centers, medical facilities, and other social service providers to collect clients and transport them from home to medical facilities, shops and other locations. The providers listed in Exhibit IV-17 all operate vehicles purchased with funds provided through this program.

### Exhibit IV-17 Providers of Transportation Service for the Elderly and Disabled Receiving Funding Assistance

Name	Service Type	Base
Area VIII Agency on Aging	Demand-Response	Great Falls
Big Horn County Council on Aging	Demand-Response	Hardin
Blackfeet Nursing Home	Demand-Response	Blackfeet Reservation
Choteau Senior Citizens	Demand-Response	Choteau
Community Hospital	Demand-Response	Anaconda
Community Memorial Hospital/Richland Homes	Demand-Response	Sidney
Community Medical Center	Demand-Response	Missoula



**Exhibit IV-17**  
**Providers of Transportation Service for the Elderly and Disabled**  
**Receiving Funding Assistance**  
*(Continued)*

Name	Service Type	Base
Richland County Commission on Aging, Inc.	Demand-Response	Sidney
Rocky Boy Health Board-Elders Program	Demand-Response	Rocky Boy Reservation
Rocky Mountain Development Council	Demand-Response	Helena
Roosevelt Memorial	Demand-Response	Culbertson
Rosebud Community Hospital	Demand-Response	Forsyth
Senior Citizens of Liberty County	Demand-Response	Chester
Special Transportation, Inc.	Demand-Response	Billings
Tobacco Valley Senior Citizen Center	Demand-Response	Eureka
West Yellowstone Foundation	Demand-Response	West Yellowstone
Wheatland Memorial Hospital/NH	Demand-Response	Harlowton
Wibaux County Nursing Home	Demand-Response	Wibaux

Sources: *Transportation In Montana.* Montana Department of Transportation, Transportation Planning Division. (Helena, MT: December, 1993.).  
 Montana Department of Transportation Staff. August, 1994.

**d. Intercity Bus**

Intercity bus services are provided in Montana by the private sector. In recent years there have been large changes in the intercity bus industry. This change has been particularly great this year. Intermountain Bus Lines has ceased business and there is a very strong possibility that Greyhound Lines, Inc. will not operate in Montana as of January 1, 1995. Many of Intermountain's routes are now operated by Rimrock Trailways which is now the largest operator in the state.

The intercity bus routes currently served are shown on the passenger transportation map.



Name	Service Type	Base
Dawson County Urban Transportation District	Demand-Response	Glendive
Faith Lutheran home	Demand-Response	Wolf Point
Fallon County Council on Aging	Demand-Response	Baker
Golden Years, Inc.	Demand-Response	Plentywood
Great Falls Senior Center Transportation	Demand-Response	Great Falls
Hollowtop Senior Center	Demand-Response	Pony
Hospitality House	Demand-Response	Big Timber
Hot Springs Senior Center	Demand-Response	Hot Springs
Human Resources Development Council/Galavan Transportation	Demand-Response	Bozeman
Human Resources Council, District #12	Demand-Response	Butte
Judith Basin Senior Citizen Center	Demand-Response	Stanford
Kootenai Senior Citizens Insurance	Demand-Response	Troy
Lake County Council on Aging	Demand-Response	Ronan
Libby Senior Citizens Center	Demand-Response	Libby
Liberty County Council on Aging	Demand-Response	Chester
Missoula Aging Services	Demand-Response	Missoula
Mountain View Medical Center	Demand-Response	White Sulpher Springs
Musselshell County Council on Aging	Demand-Response	Roundup
Native American Senior Center	Demand-Response	Flathead Reservation
North Valley Senior Center	Demand-Response	Columbia Falls
Northern Cheyenne Elderly	Demand-Response	Northern Cheyenne Reservation
Noxon Senior Citizens, Inc.	Demand-Response	Noxon
Parkview Senior Center	Demand-Response	Cut Bank
Phillips County Council on Aging	Demand-Response	Malta
Pondera County Council on Aging	Demand-Response	Conrad

rural. The program seeks to enhance coordination of federally assisted programs and services in order to encourage the most efficient use of Federal resources and achieve the national goal of improved mobility for elderly persons and persons with disabilities (1992 Federal Transit Administration circular).

There are now more than 75 providers of transportation in Montana that operate vehicles funded through this program. These services are almost exclusively used by the elderly and disabled. There are approximately 40 providers that maintain a policy of public access (Montana Department of Transportation). Federal funds pay 70 percent of all capital and administrative costs, with the remaining 30 percent paid for from unrestricted federal funds, state monies, or local sources.

Exhibit IV-17 lists the providers of transportation services to elderly individuals and disabled individuals that, when space permits, will provide transportation for the public too. These services are provided by non-profit organizations such as senior centers, medical facilities, and other social service providers to collect clients and transport them from home to medical facilities, shops and other locations. The providers listed in Exhibit IV-17 all operate vehicles purchased with funds provided through this program.

### Exhibit IV-17 Providers of Transportation Service for the Elderly and Disabled Receiving Funding Assistance

Name	Service Type	Base
Area VIII Agency on Aging	Demand-Response	Great Falls
Big Horn County Council on Aging	Demand-Response	Hardin
Blackfeet Nursing Home	Demand-Response	Blackfeet Reservation
Choteau Senior Citizens	Demand-Response	Choteau
Community Hospital	Demand-Response	Anaconda
Community Memorial Hospital/Richland Homes	Demand-Response	Sidney
Community Medical Center	Demand-Response	Missoula

## Exhibit IV-16 Montana's Rural Transit Systems

Organization	Service Type	Base
Area IX Agency on Aging (Eagle Transit)	Demand-Response and Fixed Route	Broadus
Blackfeet Transit	Demand-Response	Browning
Butte-Silver Bow Transit	Fixed Route	Butte
City of Helena Dial-A-Ride	Demand-Response	Helena
Fergus County Council On Aging	Demand-Response and Fixed Route	Lewistown
Fort Peck Transportation System	Demand-Response and Fixed Route	Poplar
Garfield County Council on Aging (Big Dry Transit)	Demand-Response	Jordan
Powder River County Transportation System	Demand-Response	Broadus
Valley County Council On Aging	Demand-Response	Glasgow

Source: *Transportation in Montana*. Montana Department of Transportation, Transportation Planning Division. (Helena, MT: December, 1993).

### c. Transportation for the Elderly and the Disabled

Transit services that meet the special needs of elderly individuals and individuals with disabilities are provided by a wide range of nonprofit organizations and social service providers across Montana. The MDT manages the allocation of the Section 5310 (formerly Section 16) program of grants and loans for meeting the special transportation needs of elderly individuals and individuals with disabilities.

Categorical funding for the elderly and disabled program is designed to supplement Federal Transit Administration support for urban and rural transit systems by financing transportation projects for elderly individuals and individuals with disabilities in all areas - urbanized, small urban, and



## Exhibit IV-15 Montana's Urban Transit Systems

Organization	Service Type	Service Area
Great Falls Transit District	Demand-Response and Fixed Route	Great Falls and Black Eagle
Metropolitan Transit (MET)	Fixed Route	City of Billings
Mountain Line Transit	Demand-Response and Fixed Route	Missoula Urban Transportation District

### b. Rural Transit Systems

There are nine rural public transportation systems in Montana serving rural areas and cities under 50,000 population. Two of these, Butte and Kalispell, have fixed routes. The nine operating rural transit systems in Montana are listed in Exhibit IV-16.

The rural transit systems receive federal funding support under Section 5311 titled "financial assistance for other than urban areas" (formerly Section 18) of the Federal Transit Act. MDT currently works with the rural transit providers to administer the financial assistance under this program.

In most cases, local non-profit organizations operate the rural transit systems. Federal funding requires that there will be general public access to the service, in addition to the particular clientele for which the system is primarily intended. Federal funding for rural transit providers will cover up to 70 percent of capital and administrative costs and 50 percent of deficit operating costs.



## **B. PUBLIC TRANSPORTATION IN MONTANA**

### **1. Public Transportation Today**

Public transportation in Montana includes urban and rural transit, demand responsive transit for the elderly and disabled, intercity bus and vanpooling. These are provided by different public agencies, not-for-profit organizations, and the private sector. Public transportation is provided at the local, intrastate, intercity, and interstate levels. Local and intrastate transit providers operate as demand responsive and fixed route providers, or a combination of the two. Intercity and interstate providers operate scheduled services on fixed routes.

As discussed in Section III Transportation System Designation, bus transit in Montana is most important to that segment of the population without access to a car. Currently, it performs a social role providing basic mobility for many Montanans. For the future, particularly in the urban areas, there are opportunities for using existing and developing new public transportation services which can provide an alternative to the single occupancy vehicle and support demand management strategies.

Federal funding defines the organization of bus transportation in Montana. Federal assistance is distributed to providers by categorical allocation that distinguishes between urban transit, rural transit, and transportation for the elderly and individuals with disability.

#### **a. Urban Transit Systems**

There are urban transit systems in Missoula, Great Falls, and Billings as shown in Exhibit IV-15. These systems receive federal funding support through block grants provided under Section 5307 (formerly Section 9) of the Federal Transit Act.

Federal funding is allocated to urban transit systems that serve 50,000 or more people. Federal funding covers 80 percent of capital and planning projects and 50 percent of deficit operating costs. Unfunded operating costs are collected from local sources or farebox revenues. The state currently plays no role in the administration or funding of urban transit systems in Montana.

### Exhibit IV-13 Forecast Traffic Growth Factors by District, 1992-2015

Highway District	Annualized Growth Rate, 1992 to 2015	Percentage Growth from 1992 to 2015			
		Interstate	Primary	Secondary	Total
District 1 (Missoula-Kalispell)	1.75	54	46	53	49
District 2 (Bozeman-Butte)	2.01	69	44	63	58
District 3 (Great Falls-Havre)	1.18	47	28	15	31
District 4 (Glendive-Glasgow)	0.65	14	17	15	16
District 5 (Billings)	1.20	28	36	30	32

By the year 2015, more highway corridors are expected to become congested, by the same level of service "D" measure, as noted in Exhibit IV-14.

### Exhibit IV-14 Current and Forecast Congested Corridors

Miles of Roadway Operating at Level of Service "D" or Worse				
Current	2000	2005	2010	2015
304.6	336.6	392.6	424.5	467.2

Source: TranPlan 21 Congestion Management System.

However, the challenge for Montana is in ensuring that the system can meet the demands of the twenty-first century.

**Exhibit IV-12**  
**Growth in Daily Vehicle Miles Traveled in Montana, 1987-1993**

District	1987	1988	1989	1990	1991	1992	1993	Average Annual Growth Rate (Percent)
District 1 (Missoula - Kalispell)	4.44	N/A	N/A	4.94	4.95	5.33	5.55	4.2
District 2 (Bozeman - Butte)	2.92	N/A	N/A	3.36	3.36	3.62	3.62	4.0
District 3 (Great Falls - Havre)	2.80	N/A	N/A	3.00	3.04	3.09	3.20	2.4
District 4 (Glendive - Glasgow)	1.90	N/A	N/A	1.97	2.03	2.04	2.10	1.8
District 5 (Billings)	3.39	N/A	N/A	3.56	3.43	3.77	3.85	2.3
<b>TOTAL</b>	<b>15.44</b>	<b>N/A</b>	<b>N/A</b>	<b>16.85</b>	<b>16.80</b>	<b>17.84</b>	<b>18.25</b>	<b>3.0</b>

Source: MDT Highway Information System

Note: N/A=Not available

Sustaining existing highway performance levels to meet tomorrow's demands will be a challenge. Montana's population, economy and associated travel demands are changing. There has been a large growth in vehicle miles traveled in Montana over the past decade. This growth has varied considerably between the different regions of the state. These growth rates are particularly pronounced in the fastest growing areas of the state. The growth rates are due to the overall increase in population and employment, increased tourist visits, a growth in bridge traffic through the state, and an overall growth in the number of miles driven by each Montanan. Historic rates of growth are shown in Exhibit IV-12 and forecasted growth is shown in Exhibit IV-13. Daily vehicle miles traveled in the Missoula Kalispell area (District 1) have grown at more than twice the rate of eastern Montana.

Forecasts have been developed to predict traffic demand over the next twenty years as part of the TranPlan 21, (The forecasting methodology and results by segment are described in Appendix D to the TranPlan 21 Volumes.) These forecasts indicate a slower but continued rate of traffic growth on Montana's highways. Forecasts indicate that over the next twenty years western Montana's roads could be carrying between half and three-quarters as much traffic again. This growth will likely be most concentrated in counties adjacent to urban areas.

Traffic modelling indicates that there are several corridors on the Montana highway system that are currently congested. These highway corridors, shown by a map in Volume II, are performing at or below a level of service "D", which represents roadway conditions that fit the following description:

Level-of-service D represents high density, but stable, flow. Speed and freedom to maneuver are *severely restricted*, and the driver or pedestrian experiences a generally *poor level of comfort and convenience*. Small increases in traffic flow will generally cause *operational problems* at this level (*emphasis added*).

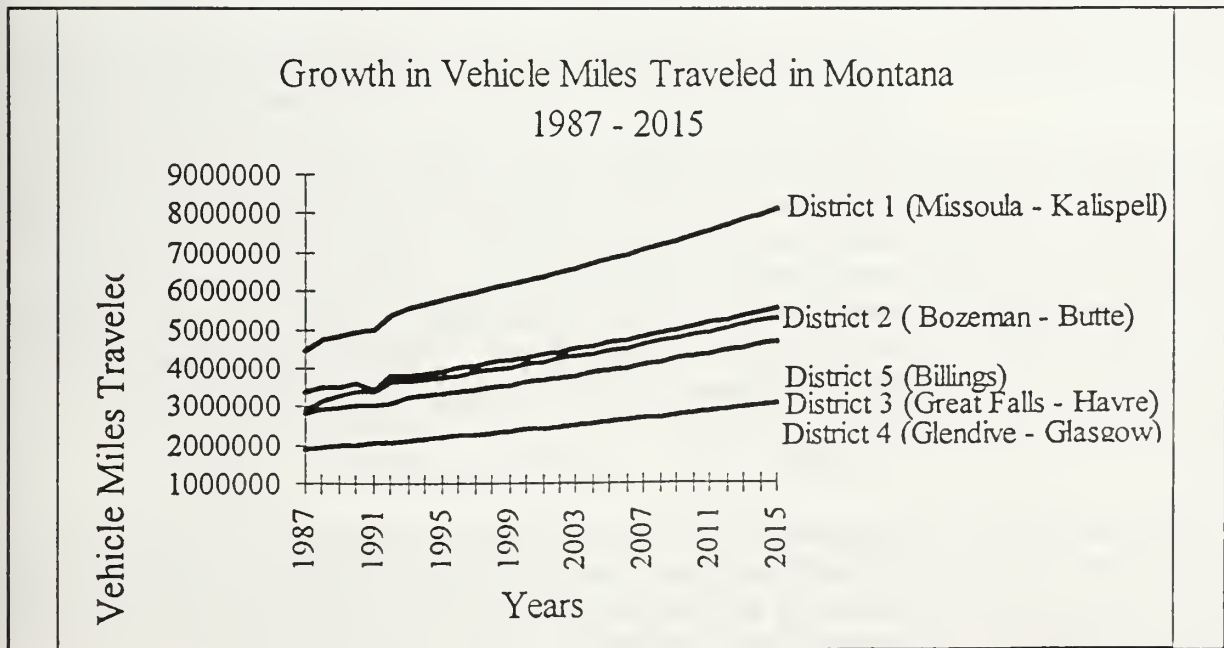


Missoula is the only area in Montana that is a moderate nonattainment area for carbon monoxide (CO) and particulate matter (PM<sub>10</sub>) standards. However, there are nine other areas across the state that violate PM<sub>10</sub> standards. The population living in Missoula, 42,918 people, accounts for 5.4 percent of the state, based on 1990 census counts, while approximately 105,000 people, or 13.2 percent of the state population, lives in areas in violation of PM<sub>10</sub> standards.

#### 4. Future Conditions

Highways will continue to be the most important component of the Montana transportation system during the next twenty years. Exhibit IV-11 summarizes the traffic growth forecast for the next twenty years. Traffic growth is projected to continue throughout the duration of Plan. For example, daily vehicle miles traveled on the state system is expected to exceed 22 million by 2015. A large proportion of this growth is projected to occur in western Montana, where the rapidly growing areas of Missoula and Flathead county are located. Areas including and surrounding Bozeman and Butte are also expected to experience a growth in the number of vehicle miles traveled daily.

**Exhibit IV-11**  
**Historic and Forecast Daily Vehicle Miles Traveled on State System**  
**1987-2015**



consequence of deferred maintenance on the part of counties will be increased preservation needs eligible for federal funding.

**c. Safety**

The number of fatalities and injuries per vehicle mile traveled and the number of accidents per vehicle mile traveled provide measures of highway safety. Exhibit IV-10, lists the numbers of accidents in 1992. The majority of injuries and fatalities resulting from accidents in Montana occurred in rural areas.

**Exhibit IV-10**  
**Accidents, Injuries, and Fatalities in Montana, 1992**

	1992 Accidents		1992 Injuries		1992 Pedestrian	
	Fatal	Non-Fatal	Fatal	Non-Fatal	Fatal	Non-Fatal
Rural	152	3,932	171	6,057	8	49
Urban	20	1,983	21	2,958	6	70
<b>Total</b>	<b>172</b>	<b>5,915</b>	<b>192</b>	<b>9,015</b>	<b>14</b>	<b>119</b>

Source: USDOT, Federal Highway Administration. *Highway Statistics, 1992*.

In 1992, 6,087 accidents occurred on the state's roadways, resulting in 9,015 injuries and 192 fatalities. When measured in terms of the distances traveled per incident, there were 2.25 fatalities and 105.75 injuries per 100 million annual vehicle miles traveled. Montana's fatality rates were worse than the national average, which yielded 1.75 fatalities per 100 million annual vehicle miles traveled. However, Montana's injury rates compare favorably with national rates, which were 153.99 injuries per 100 million annual vehicle miles traveled. Overall, Montana had 108.00 injuries and fatalities per 100 million vehicle miles traveled versus the national rate of 155.75 (Federal Highway Administration, 1993).

**d. Air quality and the highway system**

Motor vehicles contribute to air pollution through vehicle emissions. The United States Environmental Protection Agency monitors air quality, measuring the concentration of several pollutants against the standards set by the federal Clean Air Act and its amendments.

### Exhibit IV-9 Pavement Conditions on Primary and Interstate Roadways

Average Serviceability of Statewide System (Pavement Serviceability Index)					
Roadway Classification	1983-1984	1985-1986	1988	1990	1992
Primary System	2.6	2.8	3.0	3.4	3.3
Interstate System	3.6	3.8	3.7	3.7	3.6
Secondary System	Information Not Available				

Source: 1992 State of the Primary Pavement Report.

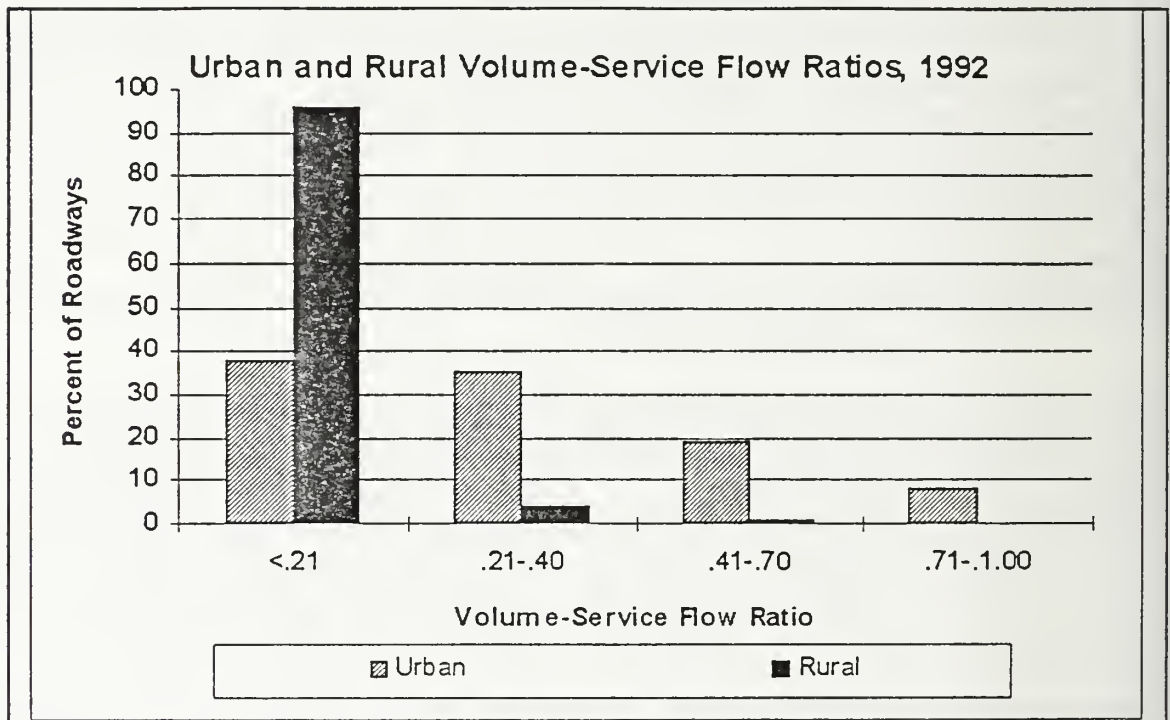
A Present Serviceability Index (range = 0 to 5) between 2 and 3 represents a condition that is "fair" and between 3 and 4 is "good". The data presented in Exhibit IV-9 indicates that the average Present Serviceability Index for the primary system pavements increased from the mid-"fair" range in 1983 to the mid-"good" range in 1992. For comparative purposes, the national average condition for pavements on arterial systems is somewhat below the "good" range.

During the same period, the average condition of interstate pavements was stable, in the middle of the "good" range. This partly reflects the level of investment the state made between 1983 and 1992 and the fact that federal funding for the interstate system remained approximately constant throughout the period.

Data regarding the average condition of secondary system pavements is not available for this time period. These data will become available with the implementation of the pavement management system together with information about the remaining life of the pavement. There are 4,631 center line miles on the secondary system, of which the MDT is responsible for maintaining less than 500 miles. Classification on the secondary system merely makes the roadway eligible for improvements as determined by the counties responsible for the federal funds suballocated for their use.

Secondary system pavement preservation needs are in part addressed by the Save Our Secondaries program. There is continued county concern that there is not adequate funding to meet preservation needs on the secondary system. This could be true, however, this conclusion can not be validated until the data are available. It should be emphasized that one

### Exhibit IV-8 Urban and Rural Volume-Service Flow Ratios, 1992



The level of service analysis undertaken as part of TranPlan 21 identified corridors that are currently congested in Montana. These are shown in Map 1 at the end of this section. Congestion is defined as those corridors that are below level of service C.

#### b. Roadway conditions

The pavement serviceability index provides a measure of pavement conditions. Based on this measure, which does not describe the overall structural condition of the highway pavement, overall the average condition of the primary and interstate systems in Montana is good. Pavement conditions are summarized in Exhibit IV-9.



**Exhibit IV-7**  
**Daily Vehicle Miles Traveled, 1993**

	Daily Vehicle Miles Traveled
Rural Interstate	5,230,184
Urban Area Interstate	564,651
TOTAL INTERSTATE	5,794,835
Rural NHS	4,963,613
Urban Area Primary Route NHS	771,846
Urban Route NHS	175,156
Urban Area Local Route NHS	6,032
TOTAL RURAL NON-INTERSTATE NHS	4,963,613
TOTAL URBAN AREA NON-INTERSTATE NHS	953,034
TOTAL NON-INTERSTATE NHS	5,916,647
TOTAL NHS	11,711,482
Rural State Primary	2,468,878
Urban State Primary	549,511
TOTAL STATE PRIMARY	3,018,389
TOTAL STATE SECONDARY	1,585,363
TOTAL STATE URBAN	1,936,253
TOTAL LOCAL	5,610,959
STATEWIDE GRAND TOTAL	23,862,446

Source: MDT Traffic Operations Section

### 3. Current Conditions

The current condition of the highway system is considered in terms of the physical or structural condition of the roadways, the mobility that they provide, and safety.

#### a. Mobility

Use of the Montana highway system is increasing. The most common measure of roadway use is the vehicle miles traveled indicator. A vehicle mile traveled is the equivalent of one vehicle travelling one mile. In 1993, there were just under 24 million daily vehicle miles of travel. This traffic volume has been increasing at a rate of approximately 2.5 percent annually, which is slower than the national rate.

Exhibit IV-7 lists daily vehicle miles traveled on each element of the highway system for 1993.

In general terms, Montana's highways provide free-flowing mobility for motorized vehicles. There are very few segments of the state highway system that operate under congested traffic conditions. Those areas that are congested are primarily in the state's urbanized areas and selected corridors in western Montana.

The Federal Highway Administration reports that in 1992, there were only 22 miles of roadway in Montana that had a volume-service flow ratio of 0.95 or worse. The volume-service flow ratio compares the volume of vehicles travelling a roadway and the roadway's design capacity. A score of 0.95 shows that the road is operating at 95 percent of capacity. In Montana, less than one percent of roadways operate at 71 or more of their capacity. All of the 55 miles of road that are at 71 percent or more of their capacity are located in urban areas. Further information regarding volume-service flow ratios for the state of Montana is provided by Exhibit IV-8.

geographic area encompassed within the urban area boundaries established for incorporated cities with populations over 5,000. These urban area boundaries are established by the MDT in cooperation with the appropriate local government office. They include both the areas within and near the 14 incorporated cities eligible for urban area status. The urban highway system includes most urban principal and minor arterials that are not on the National Highway System or the primary highway system and also includes a subset of the urban collectors.

- **State Highways**

The state has responsibility for maintenance on a number of other roads. In the past these have been referred to as "orphan plant". In state statute they are called "state highways" and are defined as "the highways throughout the state that are not on a defined highway system but are on the state maintenance system."

- a. **Maintenance responsibility**

Maintenance responsibility by funding system is shown in Exhibit IV-6.

**Exhibit IV-6**  
**Montana's Highway System**  
**Maintenance Responsibility by State Funding Designation**

System Classification	Maintenance Responsibility (Center Line Miles)		
	State	Local	Total
National Highway System	3,859	--	3,859
Primary Highway System	2,836	--	2,836
Secondary Highway System	231	4,400	4,631
Urban Highway System	89	256	345
State Highways (Orphan Plant)	1,136	--	1,136
<b>TOTAL</b>	<b>8,151</b>	<b>4,656</b>	<b>12,807</b>



**Exhibit IV-5**  
**Montana's Highway System**  
**Center Line Miles by State Funding Categories**

System Classification	Center Line Miles	Total Lane Miles
National Highway System	3,859	10,344
Primary Highway System	2,836	5,793
Secondary Highway System	4,631	9,244
Urban Highway System	345	769
State Highways (Orphan Plant)	1,136	2,272
<b>TOTAL</b>	<b>12,807</b>	<b>28,422</b>

Note: Highway Commission and approved by the United States Secretary of Transportation for inclusion on the National Highway System, as provided for by Title 23, United States Code.

- **The Primary Highway System**

The Montana Highway Commission has the authority to determine which functionally classified principal or minor arterials are placed on the state primary highway system. The primary highway system comprises of a subset of rural minor arterials and urban principal and minor arterials that were not included on the National Highway System.

- **The Secondary Highway System**

The Montana Highway Commission, in cooperation with boards of county commissioners, determines which rural minor arterials and rural major collectors are placed on the secondary highway system. Most rural minor arterials that are not on the primary highway system are included on the secondary highway system. This system also includes a subset of the functionally classified rural major collectors. It should be noted that some rural minor arterials such as the "Going-to-the-Sun" highway are on neither the state primary or secondary highway system because they are under the sole jurisdiction of a federal agency.

- **The Urban Highway System**

The Montana Highway Commission, in cooperation with appropriate local jurisdictions, determines which urban arterials and collectors are placed on the urban highway system. The urban highway system is limited to the



### Exhibit IV-4 Jurisdictional Responsibility For Highway Funding In Montana By Functional Classification

Functional Classification	Highway Corridors in the Statewide Plan	Funding Responsibility		Federal Funding Designation	State Funding Designation
		Maintenance	Improvements		
Interstate	All	State	State	NHS	NHS
Rural Principal Arterial	All	State	State	NHS STP	
Rural Minor Arterial	All	State Local	State Local	STP	Primary Highway System
Rural Major Collector	Partial (On Secondary System)	State Local	State Local	STP	Secondary Highway System
Rural Minor Collector		Local	Local		
Rural Local Road		Local	Local		
Urban Principal Arterial	All	State Local	State Local	NHS and STP	NHS Primary Urban
Urban Minor Arterial	All	State Local	State Local	STP	Primary Urban
Urban Collector	Partial (On Urban System)	State Local	State Local	STP	Urban
Urban Local Street		Local	Local		

Note: State Highways not included

Local includes city, county, United States Forest Service, Bureau of Land Management, National Park Service, and the Bureau of Indian Affairs

## 2. Highway System Organization

Montana's highway system is organized by functional classification and by state designated funding systems for planning and funding purposes. The relationship between functional classification and state funding systems is described below.

Highways in Montana are organized into the following categories:

- The Interim National Highway System (NHS).
- The primary (non-NHS) highway system
- The secondary highway system.
- The urban highway system.
- State highways (orphan plant).

The relationship between these systems, the highway facilities included in the statewide system designated for statewide planning purposes, and the functional classification system is shown in Exhibits IV-4 and IV-5.

- The Interim National Highway System (NHS).

These are interstate and principal arterials designated by the Montana Highway Commission and approved by the United State Secretary of Transportation for inclusion on the National Highway System, as provided for by Title 23, United States Code.

### Exhibit IV-3 Vehicular Traffic at Montana-Canada Ports of Entry, 1983-1993

Port of Entry Location	1983 Traffic		1993 Traffic		1983-1993 Percent Change in All Traffic
	Commercial	All	Commercial	All	
Del Bonita	N/A	130	N/A	195	50.0
Morgan	13	88	19	103	17.0
Opheim	7	62	16	45	37.1
Piegan	15	645	63	725	12.4
Raymond	27	394	70	415	5.3
Rooseville	102	570	120	850	49.1
Scobey	23	127	10	181	42.5
Sweetgrass	167	800	400	2,340	192.5
Turner	18	88	N/A	175	88.0
Whitetail	N/A	45	N/A	40	-11.1
Whitlash	N/A	25	N/A	45	80.0
Wild Horse	21	90	N/A	281	212.2
Willow Creek	N/A	100	N/A	172	72.0
<b>TOTAL</b>	<b>N/A</b>	<b>3,164</b>	<b>N/A</b>	<b>5,607</b>	<b>77.2</b>

Source: Montana Department of Transportation, Traffic Operations Section

Interstate 15 has an average of daily truck traffic and between 500 and 1,000 trucks between Dillon and Shelby. Highway 93 also acts as a highway freight corridor between Hamilton and Polson, and between Rollins and Whitefish, where average commercial traffic ranges between 500 and 1000 vehicles daily.

**c. Border crossings - ports of entry**

Border crossings, that serve as ports of entry from Canada into Montana for planning purposes are considered as part of the highway system. There are 13 border crossings that handled approximately 5,600 vehicles per day in 1993. The change in the number of vehicles passing daily through each port of entry between 1983 and 1993 is shown in Exhibit IV-3.

The change in traffic at individual border-crossing facilities varied significantly because of several factors. There are only three 24-hour ports of entry, located at Roosevelt, Sweetgrass-Coutts, and Raymond. Other ports of entry operate during locally determined hours or during summer months only. The port of entry at Sweetgrass is by far the busiest facility because it is located along Interstate 15, connecting the western United States to Calgary, Edmonton, and other parts of Canada. The importance of Sweetgrass as a border crossing is increasing. In 1983, it accounted for just 25 percent of all the traffic between Montana and Canada, by 1993 it accounted for 42 percent. Overall, there were 3,164 daily border crossings state-wide in 1983, which increased over 77 percent to 5,607 by 1993. Almost half of this increase passed through Sweetgrass.

**d. Freight corridors**

Several major highways in Montana function as highway freight corridors. TranPlan 21 defined highway freight corridors to be corridors with 500 or more average daily commercial vehicle traffic. Interstate 94 carries between 500 and 1000 trucks daily, on average, between the Montana-North Dakota border and Billings. Similarly, Interstate 90 carries the same approximate volume of traffic from the Wyoming border to Crow Agency, where the commercial traffic volume increases to an average of 1000 or more trucks per day across the state to the Idaho border. While only limited information is available, traffic counts on these corridors suggest that a large proportion of the on Interstate 90-94 "bridge", or pass through, the state. This assumption is evidenced by the fact that Interstate 90-94 is the main route between the Midwest and the Northwest United States.



functional obsolescence is based upon federal standards, which might be considered excessive for some of the state's low volume roads. Most bridges in the western part of the state are in need of retrofitting to bring them into compliance with code provisions for earthquake loading resistance. The MDT's Bridge Bureau has been developing methods for retrofitting and is programming retrofits based upon a prioritized list of bridges. The MDT is developing a Bridge Management System that will provide more complete data from which to identify more accurately the functional needs of bridges.

### Exhibit IV-2 Number and Condition of Montana's Bridges

Highway System	Number of Bridges	Structurally Deficient Bridges		Functionally Obsolete Bridges	
		Number	Percent	Number	Percent
Interstate	816	2	0.3	208	25.5
Non-Interstate, National Highway System	499*	24	4.8	35	7.0
State Primary	497	16	3.2	41	8.3
State Secondary	481	34	7.1	52	10.8
State Urban	60	5	8.3	26	43.3
Local On-System**	246	22	8.9	23	9.4
Local Off-System	1,855	313	16.9	524	28.3
<b>Total</b>	<b>4,454***</b>	<b>416</b>	<b>9.3</b>	<b>909</b>	<b>20.4</b>

\* National Highway System, formerly Primary 492

\*\* State highway (orphan plant)

\*\*\* Does not include structures under Federal jurisdiction such as the Bureau of Indian Affairs, the United States Forest Service, the United States Forest Service, and the Bureau of Land Management.

Montanans and visitors to the state used their vehicles to travel just under 24 million miles each day in 1993.

### Exhibit IV-1 Montana's Highway System by Functional Classification

Functional Classification	Total Center Line Miles	Total Lane Miles	National Highway System	Center Line Miles		Urban System	State* System
				Primary	Secondary		
Interstate	1,191	4,764	1,191	N/A	N/A	N/A	N/A
Rural Principal Arterial	2,622	5,432	2,605	17	N/A	N/A	N/A
Rural Minor Arterial	2,986	6,033	N/A	2,764	N/A	N/A	N/A
Rural Major Collector	7,092	14,162	N/A	N/A	4,460	N/A	337.5
Rural Minor Collector	9,078	18,156	N/A	N/A	N/A	N/A	121.0
Rural Local Road	45,447	70,191	N/A	N/A	N/A	N/A	657.6
Urban Principal Arterial	172	533	62.5	48	N/A	59.7	N/A
Urban Minor Arterial	221	463	N/A	7	N/A	190.9	0.5
Urban Collector	291	584	0.5	N/A	N/A	94.5	9.4
Urban Local Street	1,632	3,242	N/A	N/A	N/A	N/A	10.5
<b>TOTAL</b>	<b>70,732</b>	<b>123,560</b>	<b>3,859</b>	<b>2,836</b>	<b>4,631</b>	<b>345</b>	<b>1,136</b>

Note: N/A=Not Applicable  
State System as of 7/1/94, subject to revision.

#### b. Bridges

There are 4,454 bridges in Montana. In general, Montana's bridges are in better condition than the national average, with only 9.3 percent structurally deficient compared to the national average of 22 percent. Exhibit IV-2 shows the number and condition of Montana's bridges. About 20.4 percent of the state's bridges are functionally obsolete, which is slightly above the national average of 15 percent. The determination of

The state undertakes modernization and safety improvements to ensure that the highway system has adequate capacity and is safe. This involves monitoring the current system, identifying problematic areas, and implementing modernization efforts to improve traffic flow and safety. Among others, modernization efforts include bridge upgrades, construction of grade separations to eliminate conflict between trains and vehicular traffic, and system design improvements to reduce dangerous intersections, curves, and grades.

The extent of Montana's highway system, its organization, current, and future conditions are described.

## **1. Montana's Highway System Today**

Montana is one of the most rural states in the nation, covering a large sparsely populated land area. The highway system plays a central role in allowing the state to function politically, economically, and socially. Three-quarters of all the miles traveled in Montana are driven outside of the state's urban areas. Montana's highway system connects small communities to regional service centers and the major cities to one another and the rest of the nation. As Governor Racicot stated, "highways are the life-line and life-blood of [Montana's] economy". In addition, Montana's highway system plays a key role in the National Highway System providing important interstate and international transportation corridors.

### **a. Extent of the highway system**

The extent of the system is reflected in the number of miles of roadway that cross the state. The extent of the system is shown in Exhibit IV-1 which lists the number of center line and center lane miles by functional classification in Montana. Centerline miles, a measure of roadway length, and lane miles, a measure of roadway length multiplied by the number of lanes along each roadway segment, indicate the system's extent. Functional classification describes the role or function of the roadway. As shown in Exhibit IV-1, Montana's highway system comprises over 70,000 center line miles of roadway and 123,560 lane miles of roadway in Montana. There are 12,807 center-line miles and 28,422 lane miles on the state's highway system. These are the higher functionally classified roads that serve as the primary foundation for the mobility of most Montanans and the state's commerce. Mileage not on the state system consists of local routes and roads on federal lands.

Montanans are heavily dependent upon their highway system. In 1992, over 900,000 vehicles were registered in the state, 540,739, or 60 percent, of which were automobiles used primarily for personal mobility.



## IV. TRANSPORTATION SYSTEM ANALYSIS



This section evaluates current and forecasts future demands for the use of the different elements of Montana's transportation system. The conditions of the existing transportation system and the capabilities of the system, as currently configured to meet future demands are considered. For each mode, the section evaluates the key issues that will affect the transportation system over the long-range planning horizon. The range of public actions available at the state level for addressing these issues and their practical feasibility are addressed in Volume III, TranPlan 21 Policy Papers.

The transportation system analysis is presented in the following sections:

- Highways and bridges.
- Public transportation.
- Air transportation.
- Freight rail.
- Passenger rail.
- Pipelines.

### A. HIGHWAYS AND BRIDGES IN MONTANA

Montana's highways are the most important transportation infrastructure in the state. Roadways connect Montana's communities and the state into the national and international transportation system. The highway system performs important multimodal and intermodal functions. It is used by bicyclists and buses and provides connections to rail stations, airports, and intermodal terminals.

The Montana Department of Transportation (MDT) is responsible for the maintenance, preservation, construction, and safety of the state's highway system. Day-to-day maintenance responsibilities include keeping roadways free of litter, snow, and storm debris. Functional maintenance includes: pavement striping, reflector and sign replacement, upkeep of guardrails, roadside brush control, patching the pavement and other activities. Pavement preservation, which aims to maximize pavement life and reduce life-cycle costs, includes: resurfacing, repaving, and the reconstruction of highways.



- Links to designated border crossings.

## 2. Freight Rail Connectors Criterion

### *All branch lines*

The freight rail connectors comprise Montana's entire branch line and shortline system and are shown in the intermodal freight system map. The entire system is included because of its economic importance and the policy goal of maintaining freight transportation choices.

## 7. Intermodal Freight Transfer Facilities Criteria

### *Freight rail stations with TOFC/COFC facilities*

All freight rail stations with TOFC/COFC facilities are included. These stations will likely be included based upon the freight rail station criterion. However, any other stations with lower volumes but TOFC/COFC facilities will be included.

### *All ports*

All ports are included because they perform economic functions of statewide importance. They involve interstate and international freight and commodity movements.

## G. CONNECTORS

This category refers to the links or "connections" between the transportation facilities and the corridors that serve a statewide function. These connections generally will have lower volumes of passenger and freight traffic but serve a key role in ensuring the overall connectivity of the statewide transportation system. Examples include, local access roads to key intermodal facilities, and branch line rail facilities.

The connectors will be identified by determining the routes usually taken between the facilities and corridors designated by the preceding criterion. The criteria have not been applied to prepare an inventory of the connectors. In the urban areas this should be undertaken as part of urban area plan updates. Elsewhere, as part of the continuous planning, MDT will identify the highway connectors in conjunction with the unit of government responsible for maintaining the facility:

The following provides a preliminary list of the modal components of the connections to be included on the statewide system:

### 1. Highway Components Criterion

*All roadways, irrespective of jurisdictional responsibility, that provide the principal connection between a transportation facility and a corridor performing a statewide function.*

This will allow for the inclusion of:

- Certain rural minor collectors.
- Certain urban collectors.

#### **4. Airports Criteria**

##### *All airports with scheduled commercial service*

Airports used by air carriers providing scheduled commercial service perform a statewide function.

##### *General aviation airports with greater than 8,000 operations*

Higher volume general aviation airports, those with over 8,000 annual operations (landings and takeoffs), are included because these airports provide an important role in ensuring statewide connectivity. The state's system of general aviation airports includes many more airports. This system is important and as a system performs the function of integrating the state. This system is addressed by the Montana State Aviation System Plan.

#### **5. Intercity Bus and Intermodal Passenger Terminals Criterion**

##### *All intercity and intracity bus stations and intermodal passenger terminals*

Intercity and intracity bus depots and stations perform a statewide function. The facilities are included irrespective of the numbers of passengers using them. This reflects the ISTEA requirement to consider mechanisms for increasing the use of passenger transportation. This criterion includes intermodal passenger terminals served by intercity and intracity bus.

#### **6. Transit Centers Criterion**

##### *All transit centers*

This criterion includes transit centers served by Montana's fixed route providers in Billings, Missoula, and Great Falls. These centers will be identified in the urban area plans that address MPO planning requirements but should also be included in the statewide system because of the role they play in ensuring modal alternatives in the urban areas.

## **F. TRANSFER FACILITIES**

This category refers to transportation facilities that are at discrete locations, often referred to as "nodes", in the transportation system. These are the stations, terminals, ports, airports, and other physical facilities that are used for the transfer of passengers and/or freight between modes or the collection of passengers and/or freight for accessing particular modes.

Following provides a list of the system designation criteria for the transfer facilities that perform a statewide function and that are addressed in TranPlan 21:

### **1. Ports-of-entry Criterion**

*All border crossings on designated highway corridors*

Border crossings that meet this criterion are included because they are transportation-related facilities that affect the performance of the transportation system and generate unique infrastructure improvement needs. Although the crossings are operated by U.S. Customs, their capabilities and conditions affect the performance of Montana's transportation system.

### **2. Freight Rail Stations Criterion**

*All freight rail stations shipping greater than 1,000 carloads annually*

Many different locations serve as freight rail stations, those serving a statewide function typically process high volumes of goods as part of interstate, international, and other long-distance movements. This criterion identifies freight rail stations that ship the largest volumes of goods. The intermodal management system and the Montana State Rail Plan focus on a larger set of freight rail stations.

### **3. Passenger Rail Criterion**

*All Amtrak stations*

All stations with regularly scheduled stops are to be included. Boardings and deboardings at Amtrak stops are either intrastate, intercity or intercity. Therefore, the stations are performing a statewide function. All stations are included irrespective of the numbers of passengers served. This reflects the ISTEA goal of encouraging the use of public transportation, as well as Montana's desire for a balanced transportation system.



### **3. Rural Transit Systems Criterion**

#### *All fixed route rural transit system service areas (Section 18 recipients)*

This criterion includes rural transit service providers. This is because the service provided is serving the statewide role of ensuring connectivity and access of Montana's citizens to smaller urban areas.

This reflects the ISTEA requirement to consider mechanisms to increase the use of public transportation and Montana's desire for a balanced multimodal transportation system.

### **4. Demand Responsive Transit Systems Criterion**

#### *All demand responsive service areas (with service available to the general public)*

Demand responsive services are included because of the important social role that they play in ensuring basic mobility for the elderly and the disabled.

### **5. Air Transportation Criterion**

#### *All scheduled commercial air service routes*

This criterion includes the intercity routes served within Montana and all non-stop services available between Montana and other destinations. These services perform interstate, intercity, and intrastate functions. Therefore, all city pairs having scheduled non-stop service are included.

The criterion only includes scheduled services, however, it is important to note, that air taxi and other general aviation operations move passengers as well as freight in Montana. These are addressed in more detail in the Montana State Aviation System Plan.

### **6. Carpool and Vanpool Criterion**

#### *All programs with participation greater than 50 persons per day*

Any vanpool or carpool programs with participation greater than a 50 persons per day are to be considered part of the designated system. TranPlan 21 has not identified these. Any programs are most likely to be in Montana's urban areas.

*Rural touring and recreational routes with greatest potential use*

Montana has well defined tourism and tourist related economic development goals. Rural touring and recreational routes with the largest current and greatest potential future use will serve as a criterion for rural area bicycle corridor designation. These routes will need to be established in coordination with bicycle users. There is currently no data from which to identify non-urban bicycle corridors. This criterion will need to be refined to establish an analytical basis for corridor designation.

## **E. PASSENGER TRANSPORTATION SERVICES**

Scheduled passenger transportation services constitute a key element of Montana's transportation system. These services are provided using the transportation infrastructure that provides a statewide function.

### **1. Intercity and Intrastate Bus/Transit Service Criteria**

*All intercity and intrastate scheduled bus routes*

This criterion include all the routes served by intercity and intrastate bus providers with service areas that include Montana. These services perform interstate, intercity, and intrastate functions. The services are provided along "highway corridors". The criterion does not include charter bus services.

### **2. Local Urban Transit Systems Criterion**

*Fixed route transit systems (Section 9 providers)*

The urban area fixed route transit systems in Billings, Great Falls, and Missoula are all important to the State. The fixed route transit system service area boundaries are within MPO area boundaries. These systems perform a function of regional importance. We anticipate their incorporation into the statewide plan through the MPO planning process.

### 3. Freight Rail Corridor Criteria

#### *All Main Lines and Secondary Main Lines (Class I and II main lines)*

The criteria recommended for identifying freight rail corridors with a statewide function are based on the approach used in the Montana State Rail Plan<sup>1</sup>. This includes all "lines important from a national perspective, which preserve and improve service to 'rail dependent' industries and major rail-using communities".

Class I and II main lines are corridors that serve interstate and international functions.

### 4. Passenger Rail Corridor Criterion

#### *All lines currently used for passenger service*

This criterion includes all rail lines currently used for passenger rail in Montana. Passenger rail service in Montana performs both an interstate and intrastate function.

### 5. Pipeline Corridor Criteria

#### *Interstate and intrastate trunk pipelines*

These criteria include all interstate and intrastate trunk pipelines. These corridors are included because pipelines are a mode of freight transportation. Interstate pipelines serve international, interstate, and intrastate functions. They deliver petroleum and natural gas.

### 6. Bicycle Corridor Criteria

#### *Most significant urban area bicycle routes*

Bicycle corridors do not perform a statewide function in terms of the travel demand they accommodate. However, in urban areas they provide an alternative mode and contribute to many communities' quality of life goals. In addition, ISTEA places heavy emphasis upon including bicycle facilities as part of statewide planning. The MPOs are currently preparing bicycle elements to their long-range plans. This criterion would include the most functionally significant bicycle routes designated by MPO and urban area plans.

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<sup>1</sup> Montana Department of Transportation, 1993 Montana State Rail Plan Update.

### **Interstate and Principal Arterials (Urban and Rural)**

These highways all perform a statewide function because they meet one or more of the following criteria:

- Serve corridor movements with trip lengths and traffic volumes sufficient to demonstrate interstate and statewide functions.
- Serve urban areas with populations of 50,000 and greater and a large majority of those with populations over 25,000.
- Provide an integrated network without stub connections.

### **Rural and Urban Minor Arterials, Rural Major Collectors (on state secondary system), and Urban Collectors (on state urban system)**

These highways all perform a statewide function because they meet one or more of the following criteria:

- Provide interstate and intercounty service by linking cities and larger towns.
- Link travel generators not served by higher classification highways to travel corridors.

### **County Roads and City Streets**

The performance of county roads and city streets taken as a whole are of concern to the State. However, TranPlan 21 does not include county roads and city streets at the corridor level. TranPlan 21 is concerned with the role these roads play in the efficient functioning of an integrated statewide system. In the major urban areas these will be addressed through the federally required MPO long-range plans. TranPlan 21 will coordinate with the long-range planning being undertaken by the MPOs. In other urban areas, MDT will need to coordinate with local decision-making to ensure that it reflects the statewide function of these facilities.

Roadways of lower functional classification are not considered as corridors performing a statewide function. They are only to be included in the statewide multimodal system when they connect designated facilities to highway or rail corridors.



do not have corridor level information from which to compare the numbers of trips by mode, it can be concluded from data quantifying the use of each mode that the automobile accounts for almost all passenger trips in the corridors served by more than one mode.

The travel demand forecasts prepared for TranPlan 21 estimate future traffic in the corridors and hence provide a basis for indicating the corridors that will have the greatest potential for multimodal solutions. These are the corridors with the highest forecast intercity traffic volumes.

- **Corridors in which freight can be shipped by rail and highways.**

There are a number of corridors in which both rail and highway modes are available. In a limited sense these are multimodal corridors. However, TranPlan 21 has not identified corridors in which rail and highway modes compete for freight shipments.

The availability of both modes is a key feature of a multimodal freight system. This reflects the policy goal of preserving the existing rail system and recognizing the economic benefits to Montana from the availability of different modes for shipping freight. It is important to recognize that the freight market is diverse. It is the heavier bulk commodities that are shipped by rail longer distances whereas the motor carrier industry in Montana hauls commodities over shorter distances and is used to ship divisible loads, products, and other items.

The intermodal freight map shows where there are parallel highway and rail corridors.

## **2. Highway Corridor Criteria**

### *Interstate, principal arterial, rural minor arterial and major collector*

Montana's functional reclassification categorizes highways according to the function they perform, which establishes the starting point for designating highway corridors. The higher the classification the greater the "statewide function". The following describes the statewide functions (interstate, intrastate, and regional) that are performed by each functionally classified level included in the statewide system.

- Secondly, the extent to which there are competitive choices among the different modes serving particular corridors or routes.

The availability of more than one mode ensures modal balance. For passenger travel, this ensures basic mobility for passengers without access to an automobile and for travelers who need air service. In the case of freight mobility, this ensures that rail service is available for the shipment of bulk commodities long distances. This aspect of Montana's multimodal system is determined by inventorying all corridors served by more than one mode.

Competition between modes is a distinguishing characteristic of multimodalism. This occurs where the markets, or demand, for modes overlap. For example, transit services in very large urban areas that meet journey-to-work travel demands are competing with the automobile for passengers and not just meeting the needs of those without cars.

In Montana there is only a limited level of non-automobile intercity and intracity passenger transportation services. There is little, if any, competition between the modes. Although many corridors are served to some degree by more than one mode, the modes often serve entirely different markets.

TranPlan 21 identifies the following criteria for defining multimodalism for Montana:

- **Corridors served by more than one passenger transportation mode.**

These corridors are multimodal in the limited sense that alternatives to the automobile are available. The corridors include all the passenger rail and the intercity bus service routes shown on the passenger transportation system map as well as city-pairs within Montana served by scheduled air transportation. These corridors are only multimodal in that they are served by non-automobile modes of transportation.

- **Corridors in which there will be the greatest potential for multimodal passenger transportation solutions.**

These will be the corridors with the greatest current and forecast passenger travel. These corridors have the greatest potential for competition between the single occupancy vehicle and other travel options. Currently, while there is some level of public transportation service available to most Montanans, there is little competition between modes. Although many corridors are served to some degree by more than one mode, the modes serve almost entirely different travel markets. While we

CONNECTORS	
Modal Components	Criteria
Highway	Rural major and minor collectors connecting designated facilities to designated corridors (off the state systems) Urban minor arterials and urban collectors connecting designated facilities to designated corridors (off the state systems)
Freight Rail	All branch lines

Applying these criteria generates an inventory of the individual elements of Montana's statewide system. A final criterion involves ensuring that the transportation facilities specified by ISTEA are considered.

The criteria listed in Exhibit III-1 were applied to define the statewide system that is analyzed as part of TranPlan 21. The different components are included in a series of maps at the end of this section. These maps are a working inventory of the designated statewide multimodal transportation system. The statewide multimodal transportation system includes a subset of the transportation facilities included in the ISTEA management systems.

The statewide function demonstrated by each of the criteria in Exhibit III-1 are outlined below for corridors, passenger transportation services transfer facilities, and connectors:

## D. CORRIDORS

### 1. Multimodal Corridor Criteria

A key policy and technical task for TranPlan 21 is defining what multimodalism means for Montana. In simplest terms there are two dimensions to multimodalism in Montana.

- Firstly, the availability of more than one mode for making a particular trip and,

Passenger Rail Corridor	All lines with passenger rail service
Pipeline Corridor	Interstate and intrastate trunk pipelines
Bicycle Corridors	Most important designated urban area bicycle routes (Identified in MPO and urban area plans); Rural touring and recreational routes with greatest potential use
<b>PASSENGER TRANSPORTATION SERVICES</b>	
<b>Modal Components</b>	<b>Criteria</b>
Intercity Bus	All interstate, intrastate, and intercity bus routes
Local Urban Transit System	All fixed route transit system (Section 9) service areas
Rural Transit Systems (Intrastate and Rural Fixed Route Operators)	All fixed route rural transit system service areas (Section 18)
Demand Responsive Transit System	All demand responsive service areas (Service must be available to public)
Air Transportation	All scheduled commercial service routes
Carpools and Vanpool Programs	All programs with participation over 50 persons per day
<b>TRANSFER FACILITIES</b>	
<b>Modal Components</b>	<b>Criteria</b>
Ports of Entry	All border crossings on designated highway corridors
Freight Rail Stations	All freight stations shipping over 1,000 car loads per year (total inbound and outbound)
Passenger Rail Stations	All Amtrak stations
Airports	All airports with scheduled commercial service General aviation airports greater than 8,000 operations (landings and take-offs)
Intercity Bus	All intercity, intrastate bus depots and intermodal terminals
Transit Facilities	Transit centers
Intermodal freight transfer facilities	All ports Freight rail stations with TOFC/COFC facilities



### 3. System Designation Criteria

System designation criteria and threshold measures of the scale of activity are used to determine which elements of the transportation system serve a statewide function. The approach taken is to consider the corridors, passenger transportation services, transfer facilities, and connectors that together provide an integrated transportation system.

- Corridors are defined as the broad routes or rights-of-way through which the various modes provide transportation services.
- Transfer facilities are individual terminals or intermodal transfer points.
- Passenger transportation services are the services provided by private, non-profit, and public sector transportation providers.
- Connectors are the links or facilities which connect the transfer facilities to the corridors and ensure an integrated statewide system.

Criteria and thresholds for defining statewide function for each of these elements of the transportation system are summarized in Exhibit III-1, on the following pages.

#### Exhibit III-1: Montana's Multimodal Transportation System Components and Designation Criteria

CORRIDORS	
Modal Components	Criteria
Multimodal Corridor	Corridors served by more than one mode
Highway Corridor	All interstate; All principal arterial (rural and urban); Rural minor arterial (rural and urban); Rural major collector (on state secondary system); Urban collector (on state urban system)
Highway Freight Corridors	All highway corridors with truck average daily traffic (ADT) greater than 500
Freight Rail Corridor	All main lines and secondary main lines

**Intercity Function.** These are facilities and services that have a statewide function because they allow travel between Montana's urban areas. Intercity travel functions are performed by many elements of the transportation system that also serve international and interstate functions.

**Intrastate and Regional Functions.** These are facilities and services that have regional functions because they support travel from Montana's different regions to regional service centers and connections to facilities and services providing international, interstate, and intercity functions. These types of services vary greatly in geographic scale and could include air service from Wolf Point to Billings, and public transportation services from Anaconda to Butte.

## 2. Addressing ISTEA Planning Factors

ISTEA specifies certain elements of the transportation system that must be considered in TranPlan 21. These are:

- Strategies for incorporating bicycle transportation facilities and pedestrian walkways in projects where appropriate through out the state.
- International border crossings and access to ports, airports, intermodal transportation facilities, major freight distribution routes, national parks, recreation and scenic areas, monuments and historic sites, and military installations.
- Transportation needs of areas outside metropolitan areas.
- Recreational travel and tourism.
- Connectivity between Metropolitan Planning Organizations (MPOs) within and outside Montana.
- Methods to expand and enhance transit services and to increase their use.
- Movement of commercial motor vehicles.

The approach to defining statewide function outlined in the preceding section addresses these planning considerations in designating the statewide system. This is because the system identified by this approach includes major traffic generators and attractors regardless of their nature. Moreover, this approach addresses all modes.

scale while others serve longer-distance intrastate, interstate, and international traffic. Most facilities serve a combination of these different types of movement. The geographic scale of trips using different transportation facilities defines their functional role. Functional role refers to whether the facility or service is serving a local, regional, or statewide function. Facilities and services that perform a statewide and/or a regional function are most appropriately the focus of statewide planning.

In general, for facilities or services with a statewide and/or regional function, MDT will plan, manage, and operate or will provide assistance and guidance to maximize the ability of the facility or service to meet the performance goals.

## **C. MULTIMODAL SYSTEM DESIGNATION**

Montana's multimodal system is designated based upon the functional role each element of the transportation system provides and the need to address the different planning factors included in the ISTEA. A series of criteria were established which when applied provide an inventory of Montana's multimodal transportation system.

When designating the system, it is important to emphasize that the fundamental function of the transportation system is to provide for the movement of people and goods. In this capacity, Montana's transportation system serves both as an infrastructure for the economy and as means to achieve social, environmental, economic development, and other goals. The designated transportation system reflects these considerations.

### **1. Definition of Statewide Function and State Responsibility**

System designation provides a definition of which corridors, facilities, services, and modes currently perform a statewide function and will be subject to continuous planning. The designation also reflects the economic development, social, and environmental priorities in Montana. The starting point for designating the system is clearly defining the corridors, facilities, services, and modes that serve statewide functions and should therefore be addressed by the statewide plan.

The following describes the approach taken to identifying statewide functions and state level responsibility:

**International and Interstate Function.** This is defined as facilities and services used primarily for travel between Montana origins/destinations and other states, Canada, and overseas points. A special case of interstate or international movement is that where Montana serves as a "bridge" for traffic not having an in-state origin or destination.



## **1. The State's Current Role in Transportation**

The state's role in transportation is exercised through the MDT. Historically, the state's role has been mode specific and involved primarily planning, maintaining, and improving highway facilities on the state's funding systems. This has successfully provided the basis for the development of Montana's highway system.

Planning and funding mechanisms at the state-level have been focused mainly on the highway facilities which the state is responsible for. For the public transportation, freight rail, and air transportation modes, the state's role has been restricted to managing federal funding programs which affect a limited portion of facilities and modes.

Montana's current state-level involvement in transportation has the following characteristics:

- Serving statewide transportation demands by meeting intercity, interstate, and international transportation needs through the highway system.
- Ensuring intrastate connectivity through a highway system that connects rural areas and small communities to regional service centers.
- Providing support for minimum levels of service for facilities and services that serve regional intrastate needs in rural areas.
- Working with urban areas and metropolitan planning organizations to plan for and address mobility needs in Montana's urban areas.

TranPlan 21 builds on these existing roles, but approaches the overall transportation system in terms of the functional role each mode plays in moving passengers and freight, irrespective of who is responsible for the facility or who provides the service.

## **2. The State's Multimodal Role**

TranPlan 21 defines the state's multimodal role based upon the facilities and services that perform a statewide function and, therefore, should be included in the statewide transportation plan and addressed by the continuous statewide planning process.

Montana's transportation system serves a variety of different demands and trip purposes. Some transportation elements allow movement on a local or regional



### **III. TRANSPORTATION SYSTEM DESIGNATION**



This section designates the elements of Montana's statewide transportation system that will be subject to state-level planning. These elements are the transportation facilities and services that are addressed by TranPlan 21 and will be the focus for the continuous statewide planning process. Transportation facilities and services not included are important to Montana but are more appropriately addressed as part of other state and local planning.

#### **A. INTRODUCTION**

TranPlan 21 has initiated a new approach to planning and managing Montana's transportation system. This approach involves state-level planning extending beyond the facilities that are constructed and maintained by the state, to include elements of the transportation system which are owned and operated by other units of government and the private sector. The success of this type of planning requires close collaboration and partnership with the other jurisdictions and entities providing transportation facilities and services in Montana. TranPlan 21 represents the first steps in this collaboration, establishing a new role for the Montana Department of Transportation (MDT) as the steward of Montana's multimodal system.

The rationale and criteria used to designate the elements of Montana's statewide multimodal transportation are presented in the following sections:

- The state's role in transportation.
- Multimodal system designation.
- System elements.

#### **B. THE STATE'S ROLE IN TRANSPORTATION**

TranPlan 21, in implementing the multimodal planning requirements in the Intermodal Surface Transportation Efficiency Act (ISTEA), is determining the most effective role for the state in planning, managing, and operating transportation facilities and services. This involves determining the MDT's role, if any, in many areas of transportation which traditionally it has not been heavily involved in.

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### **3. Social Considerations**

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DISCUSSION DRAFT

**Exhibit II-32**  
**Assessment of Priority of Department of Transportation Action**

Priority	No Priority	Low Priority	Middle Priority	High Priority	Number of Respondents
Improve Other Roads	9.8	9.4	31.7	57.0	648
Improve Transportation Safety	5.5	17.0	20.9	57.7	659
Increase Capacity	5.5	13.3	35.9	45.4	648
Pedestrian Friendly Improvements	9.8	15.2	32.1	46.4	659
Preserve Rail Branches	5.7	29.8	31.7	42.3	659
Promote Rail Service Use	8.3	21.8	31.6	40.3	560
Ensure Economic Development	7.3	17.0	40.1	35.9	648
Ensure Adequate Bicycle	8.3	18.1	36.4	37.2	626
Change Travel Modes	9.8	29.8	29.2	40.3	660
Promote Transit	9.8	28.2	39.6	36.4	536
Improve Interstates	6.4	23.9	37.5	32.2	677
Minimum Environmental Improvements Construction	10.2	20.8	34.9	34.1	654
Retain Railroad Rights of Way	8.8	28.2	32.2	30.7	602
Improve Bus Depots	11.8	28.2	26.5	35.4	458
Support Intercity Bus	5.5	25.4	39.6	26.5	520
Increase Carpooling	13.6	22.9	29.9	39.6	550
Promote Intercity Bus	9.8	26.5	39.6	27.1	520
Reduce Air Impact	14.0	26.7	33.3	26.7	649
Improve Road Freight	11.3	27.1	38.7	22.9	608
Reduce Congestion	10.5	17.0	23.9	48.7	451
Increase Transit Flexibility	11.8	27.5	39.6	22.6	451
Promote Available Air Service	11.8	31.7	30.7	20.9	575
Ensure Rural Air Service	13.1	29.8	35.1	22.0	550
Reg Highway Approach	16.3	29.8	36.2	18.1	652
Reduce Private Vehicle	27.4	35.1	27.1	10.4	656

Source: TranPlan 21 Telephone Survey. November, 1994.

**c. Priorities for action**

The respondents were presented with a list of 25 potential actions that MDT could take to address the different problem areas. For each action, the respondents were asked whether they thought the action should have no priority, low priority, middle priority, or high priority. The priorities assigned are presented in Exhibit II-32.

DISCUSSION DRAFT

**Exhibit II-31**  
**Assessment of Transportation Problem Areas**

Transportation Area	Not a Problem	Small Problem	Moderate Problem	Serious Problem	Number of Respondents
Passenger Rail Availability	17.8	12.9	21.9	47.3	488
Traffic from Growth	16.7	11.8	31.0	40.5	654
Bus Depot Condition	16.4	16.1	25.6	41.9	360
Other Road Condition	8.0	19.7	44.8	27.5	687
Low Transit Use	17.1	18.5	34.5	29.8	362
Rural Air Service Availability	19.8	17.3	28.6	34.4	434
Bicycle Facilities	20.5	18.0	27.8	33.7	561
Traffic Congestion	26.4	13.3	28.4	31.8	682
Transportation Connections	23.8	19.0	33.5	23.6	483
Single Occupant Vehicles	31.9	13.1	29.8	25.2	634
Intercity Bus Availability	28.8	18.6	29.1	23.5	371
Rail Freight Service	31.7	17.1	24.8	26.4	375
Local Transit Availability	32.4	16.4	25.7	25.5	377
Transit Scheduling	35.7	14.4	29.7	20.1	333
Pedestrian Walkways	32.3	20.8	27.7	19.1	638
Support of Economic Development	28.4	23.1	35.3	13.2	592
Air Service Availability	32.8	19.0	33.9	14.3	537
Air Quality	34.3	21.2	27.4	17.1	645
Transportation Safety	35.1	19.0	33.9	12.0	643
On Road Freight	40.1	17.8	28.7	13.4	596
Construction Environmental Impact	39.6	21.1	27.1	12.2	641
Interstate Condition	38.9	25.3	30.0	5.8	684
Highway Approaches	49.0	19.0	21.6	10.4	663

Source: TranPlan 21 Telephone Survey. November, 1994.



**b. Perceived problems**

The respondents were presented with a list of 23 possible problem areas with the transportation system and were asked how serious a problem each area was. In their rating respondents were asked whether the item was not a problem, a small problem, a moderate problem, or a serious problem. These were then scaled 1 to 4, where 1 is not a problem and 4 is a serious problem. The average score for each potential problem area is listed in Exhibit II-31 below.

**DISCUSSION DRAFT**

**a. Satisfaction with the transportation system**

Survey respondents were asked to rate their level of satisfaction with twelve different components of transportation in Montana. In making these ratings, the respondents were asked to use a scale of one to ten where one was very unsatisfied and ten was very satisfied. Exhibit II-30 summarizes the results of these ratings.

Respondents were mainly well satisfied with the transportation. Although, bicycling facilities, Amtrak, between city buses, and city streets fell onto the unsatisfied side of the scale.

**Exhibit II-30**  
**Satisfaction with Montana Transportation System Components**

Transportation System Component	Number of Respondents	Average Rating
Interstate Highways	694	7.40
Shipping Freight	585	7.13
Out of State Air	577	6.69
Special Transportation	386	6.14
In State Air	393	5.72
Local Transit	254	5.57
Pedestrian Walkways	623	5.39
Other Highways	678	5.23
City Streets	700	4.87
Between City Buses	266	4.81
Amtrak	278	4.78
Bicycling Facilities	465	4.61
Overall Transportation System	700	6.20

Source: TranPlan 21, Telephone Survey. November, 1994.

## 2. Tribal Government issues

This section provides an overview of the key issues identified by the different tribal governments.

- Importance of Respecting Tribal Sovereignty

The tribal governments emphasized very strongly that they are sovereign governments and that this should be reflected in the planning process. Furthermore, this needs to be reflected in MDT's continuous planning process and Statewide Transportation Improvement Program (STIP) development. This is particularly significant given the size of the land area and the number of state facilities crossing the reservations.

- Need for Improved Interjurisdictional Collaboration

In general, the Tribes recognize that there has not been a particularly good working relationship with MDT. However, the planning process and the issue identification work are viewed as a good initiative. They believe that this needs to be translated into meaningful involvement, by developing a plan which reflects tribal concerns in the management of the transportation system.

In many locations, state owned routes pass through reservation lands. The Tribes would like to be involved in a collaborative process for planning, managing, and funding for these routes. For example, the Confederated Salish and Kootenai Tribes are concerned about corridor management and safety issues which they want addressed if tribal right-of-way is to be granted for improvements to Highway 93.

- Need To Address Indian Contract Preferences

A number of the Tribes expressed their concern about Indian contract preferences. The Blackfeet Tribe expressed their opinion that it is not possible to establish a collaborative framework for planning and programming until the outstanding disagreements with the MDT concerning Tribal Employment Rights Office (TERO) issues are resolved. Their position is that no projects will be built on the reservation until agreements are reached.

## 3. Telephone survey results

In November, 1994, a telephone survey of Montana residents was performed to determine the opinion of Montana residents about the current state of transportation in the state, and to obtain opinions about how to prioritize future MDT actions. The survey involved a random digit dialing sampling technique to generate the sample. In total 710 interviews were undertaken.

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were concerned about any potential loss of subsidized service and the high cost of this service.

**d. Freight rail issues**

- Concern about continued loss of branch rail lines. The continued loss of freight rail lines is a major concern across the State. Participants felt that in particular long-haul bulk freight belongs on rail rather than trucks. There was agreement that MDT has a responsibility to work with rail operators to keep existing lines viable where possible or at least to ensure that existing public right-of-way is protected.
- Desire to move freight from truck to rail. Many participants expressed concern about the size and speed of truck and trailer combinations they encounter on the freeway and their impact on pavement conditions. In many corridors, they saw a conflict between truck and automobile uses. Others pointed to the energy efficiencies and low environmental impacts of rail. All asked MDT to explore ways to facilitate movement of goods by rail rather than truck for these reasons. However, participants recognized that truck movements are the only viable option in many parts of the State.

**e. Pedestrian and bicycle issues**

- Strong support for incorporating pedestrian and bicycle facilities within the system. There was a high level of support for making bicycle and pedestrian facilities a consistent component of the state's future transportation system. The priorities expressed were in urban areas and in scenic corridors with high volumes of tourist traffic. Participants want bicycle facilities incorporated into planning for rehabilitation and new projects. There was a recognition that care should be taken to ensure that consideration of bicycle needs in rural areas reflects the low population density and large geographical areas in Montana.
- Need for agreed approach to design standards. The participants see a role for MDT to help local governments develop design standards that are conducive to pedestrian and bicycle use in the growing urban areas.
- Concern that safety is improved. Participants were concerned about the safety of bicyclists and pedestrians. They asked MDT to reconsider some of its design standards, for example the use of rumble strips on state highways, with their safety in mind. Maintenance practices should not adversely impact use of pedestrian and bicycle facilities.



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**c. Public transportation issues**

- Recognition of the social role of public transportation. Many participants commented on the continuing increase in the transit-dependent elderly population in the state. In particular, there is an aging population in the rural and small urban areas, and at the same time, a decline in local medical services and shopping, among others. This increases the need for transportation to emerging regional centers that provide these services. Many participants felt strongly that these essential transportation services should be provided where feasible.
- Concern about lack of coordination between systems. There was substantial concern about a lack of coordination between the existing local, regional, and intercity systems. Participants see a role for MDT in facilitating coordination and greater efficiency. This could include working to remove existing regulatory barriers to efficient regional services and providing schedule information to the public for all providers.
- Desire to provide transit-friendly infrastructure. Participants in the western cities felt that there is a need to meet future transportation demand through increases in transit use. They see a role for MDT and local jurisdictions to provide land use and design guidelines that can facilitate transit use. However, there was strong skepticism about the cost-effectiveness of fixed route systems for moving people.
- Need to promote public transportation. Some participants would like to increase public awareness of the environmental and energy benefits of public transportation and asked for more promotion.
- Concern about the condition of terminals, the lack of intermodal connections and facilities. There was some concern about the condition of terminals, especially for intercity bus passengers. Participants considered the development of intermodal shared use terminals desirable. Some participants were concerned about the current lack of access to rail and air by public transportation. They felt that the different modes of public transportation should be connected.
- Relatively little concern about air transportation outside of Northeast Montana. While a small number of participants were concerned about recent losses of commercial air service, the majority of participants did not raise the level of air transportation service as a critical issue. The participants at the Tribal Government meetings from the Glasgow, Wolf Point, and the Havre areas

**DISCUSSION DRAFT**

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There was agreement, however, that specific components of the system need capacity improvements. Highway 93 between Kalispell and Missoula, for example, was mentioned at most meetings. The need to pave the gravel road between Terry and Brockway was raised in Miles City. There was discussion of improvements between Great Falls and Billings in both locations but no consensus on the need. Most open houses identified problem intersections or connections within particular urban areas.

- Need for access management. Many participants realized the need for better access management and control on major facilities in certain corridors. They cautioned, however, against a statewide policy that does not take regional or corridor differences into consideration. Participants felt that MDT should work with local government to determine the most appropriate approaches for individual corridors and facilities.
- Prevention of billboard proliferation. There was a substantial amount of concern about billboard proliferation especially in scenic corridors. There is a belief that there has been an increase in the number and size of billboards and participants wanted MDT to address this problem.
- Acknowledgement of the needs of tourism. An increasing reliance on tourism as a major industry in Montana was predicted by many participants. They felt that it is MDT's responsibility to consider this in planning efforts. Issues raised affecting tourism included:
  - Negative impacts from billboards.
  - Lack of rest facilities (People would like to see them within communities rather than outside city limits along the freeway).
  - Signage for attractions and points of interest.
  - Seasonal congestion and safety issues along major tourist routes, especially between Glacier and Yellowstone Parks.
  - Information on location of dump stations for recreational vehicles.
- Desire for a consistent approach to improvements. Some participants felt that the decision process for financing improvements to the system is not consistent. They asked MDT to review its approach to making these decisions and ensure consistency across the State.

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corridor level, involving a number of local jurisdictions. Therefore, MDT is the only agency able to address the problems and should have a leadership role. Specific examples that indicate a broader role are: facilitating land use planning at the local and regional level, providing information on public transportation services to both users and providers, supporting local freight needs, and providing design standards conducive to bicycles, and pedestrians and transit for use by local governments.

- Concern about the overall relationship between transportation and the quality of life. Many participants asked that MDT make sure that transportation decisions are not made in a vacuum but consider their impact on communities, the quality of life of Montanans, the economy, and the environment. They called for MDT to protect the scenic beauty of the State's major travel corridors, the character of its towns and cities, wildlife, and sensitive areas.
- Importance of safe transportation facilities. The safety of highway users, bicyclists and pedestrians is a very important issue for a large majority of participants. MDT should continue to make safety a priority for all transportation users.
- Recognition of the need for coordinated land use and transportation planning. Generally, participants at the open houses were conscious of the close relationship between land use and transportation. There is a recognition that MDT affects land use decisions by providing transportation facilities and through access controls to these facilities. Roles suggested for the State include: supporting the efforts of local governments through the provision of appropriate facilities and access controls, providing information to local governments, and coordinating efforts for land use planning on a regional basis.

**b. Highway issues**

Following describes the major highway issues.

- The system is basically complete - with a few exceptions, therefore the focus should be on preservation and maintenance. Most participants at the public meetings felt that Montana has an excellent highway system given its size, population density, and resources. They thought the highway system in the state is basically complete and that MDT should focus on preservation and maintenance.



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## C. Social Considerations

The values and priorities of Montanans regarding the future of the transportation system represent many of the social considerations addressed by TranPlan 21. Their values and priorities were determined through public meetings that identified key transportation planning issues and a statewide telephone survey. The results are documented in Volume IV Stakeholder and Citizen Issues and Priorities. They are presented in a summarized form in this section.

### 1. Stakeholder issues, and priorities

The values and priorities of transportation interests and Tribal Governments across Montana were determined through a series of open houses and focus groups across the state. A total of 259 people signed in as participants others expressed their issues and values in writing or by telephone.

The issue identification showed that many Montanans share similar concerns about the current transportation system and a largely common vision for the future.

Following are the most important general and modal issues identified through public meetings. The concerns expressed represent the transportation values of those meeting attendees and do not necessarily represent the views of all Montanans, nor those of the MDT.

#### a. General issues

The following provides an overview of the overall concerns and values of transportation stakeholders.

- Desire for a multimodal transportation system. Participants recognized the importance of moving to a multimodal transportation system. This is true in particular in the urbanized areas of the state. While most participants realized that the automobile will continue to be the most important means of transportation, they also thought that it is time to start providing alternatives where it is feasible and to make provisions that will allow for the use of these alternatives in the future.
- Desire for a broader role for MDT. Participants seemed to envision a broader role for MDT than it has had in the past. They felt that a shift from an agency that is mostly concerned with roadway construction activities to one that helps better manage the overall transportation system is needed. There is a recognition that many transportation problems are not local but regional or



Environmental Considerations	State Agencies - Data Sources			Federal Agencies - Data Sources		
	Data Base	Agency	Contact	Data Base	Agency	Contact
Underground storage tanks	Leaking Underground Storage Tank List	Department of Health and Environmental Sciences	Underground Storage Tank Program	Underground Storage Tank List	U.S. Environmental Protection Agency	Air, Toxics, and Hazardous Waste Branch
Bridges with lead paint	Maintenance Reports	Department of Transportation	Bridge Engineer			
Landfills	Landfill Licenses and Classes	Department of Health and Environmental Sciences	Solid and Hazardous Waste Bureau			

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Environmental Considerations	State Agencies - Data Sources			Federal Agencies - Data Sources		
	Data Base	Agency	Contact	Data Base	Agency	Contact
11. Historic, Archaeologically and Culturally Sensitive Areas						
Tribal Ownership, State Registered for Historic Preservation, Significant Historic Sites, and MDT Historic Bridges	Cultural Resource Annotated Bibliographic System; Programmatic Memorandum of Agreements; Historic Roads and Bridges; Historic Irrigation Systems	Montana Historical Society; State Historic Preservation Office	Archeologist	National Register of Historic Places	U.S. Department of Interior, Bureau of Indian Affairs; Advisory Council on Historic Preservation	Agency Archeologist; Western Division of Project Review
12. Hazardous Waste						
Locations with mining activity history	Abandoned Mines	Department of State Lands	Reclamation Division		U.S. Environmental Protection Agency	Superfund Branch
Known superfund sites	List of Sites	Department of Health and Environmental Sciences	Environmental Remediation Division	Superfund Site List	U.S. Environmental Protection Agency	Superfund Branch

POLICY PAPER

Environmental Considerations	State Agencies - Data Sources			Federal Agencies - Data Sources		
	Data Base	Agency	Contact	Data Base	Agency	Contact
9. Threatened and Endangered Species	<ul style="list-style-type: none"> <li>Bald Eagle</li> <li>Grizzly Bear</li> <li>Piping Plover</li> <li>Pallid Sturgeon</li> <li>Whooping Crane</li> <li>Least Tern</li> <li>Bladefooted Ferret</li> <li>Gray Wolf</li> <li>Peregrin Falcon</li> <li>Water Howellia (proposed)</li> </ul>	<p>Element Occurrence Record; Geographic Information System Maps; Montana Threatened and Endangered Species Map</p>	<p>State Library</p>	<p>Montana Natural Heritage Program; Data Manager</p>	<p>Current List and Map of Threatened and Endangered Species</p>	<p>U.S. Department of Interior Fish and Wildlife Service</p> <p>Environment al Services Manager</p>
10. Sensitive Species/Species of Special Concern	<p>Natural Resource Information System</p>	<p>State Library; Department of Fish, Wildlife, and Parks</p>	<p>Regional Biologist</p>		<p>U.S. Forest Service</p>	<p>District Forester</p>

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Environmental Considerations	State Agencies - Data Sources			Federal Agencies - Data Sources		
	Data Base	Agency	Contact	Data Base	Agency	Contact
7. Floodplains Delineated floodplains	Floodplain maps	Department of Natural Resources and Conservation, County Planning Offices	Floodplain Office or County Planning Offices	Flood Insurance Regional Maps	Federal Emergency Management Administration	County Planning Offices
8. Wild and Scenic Rivers Recreational river location Scenic river location	State Navigable Waters	Department of State Lands	Land Office	National Wild and Scenic Rivers List	U.S. Department of Agriculture, Forest Service; U.S. Department of Interior, Bureau of Land Management	Missoula Regional Office, Billings Bureau of Land Management Office



Environmental Considerations	State Agencies - Data Sources			Federal Agencies - Data Sources		
	Data Base	Agency	Contact	Data Base	Agency	Contact
4. Water Quality						
Ground Water Sensitive Areas	Water Information System; Well Reports	State Library; Department of Natural Resources and Conservation	Water Information System Coordinator; Water Resource Division	Designated "Sole Source Aquifers"	U.S. Environmental Protection Agency	Montana Office
Surface Water Sensitive Areas Storm water run off/non degradation Classified streams	Erosion Control Permits	Water Quality Board; Department of Fish, Wildlife, and Parks	Fisheries Division	Clean Water Act - Section 403	U.S. Environmental Protection Agency	State Regulatory Office (Montana)
5. Wetlands Location	Interagency Wetland Group Ledger	Department of Fish, Wildlife, and Parks	Stream Protection Coordinator	National Wetlands Inventory	U.S. Fish and Wildlife Service	Montana Field Office
6. Water Body Modification (potential number of stream/river crossings)	Named Streams; 124 Stream Protection Act Permits	Department of Fish, Wildlife, and Parks	Stream Protection Coordinator	Clean Water Act Section 404 Permits	U.S. Corps of Engineers	State Regulatory Office

**POLICY PAPER**

Environmental Considerations	State Agencies - Data Sources			Federal Agencies - Data Sources		
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Other recreation and parklands as defined in Section 4(f) of Title 23 United States Code	Parks Inventory	Department of Fish, Wildlife, and Parks	Parks Division	Surface Management Maps	U.S. Department of Interior - Bureau of Land Management, Fish and Wildlife Service, and U.S. Corps of Engineers	District Office/ Montana Office
2. Farmlands						
Prime, Unique, Statewide, and Local Importance				Important Farmlands Maps	U.S. Department of Agriculture, Soil Conservation Service	District Conservationist
3. Air Quality Attainment Status Not in attainment	Carbon Monoxide and Particulate Matter, maps	Department of Health and Environmental Sciences	Air Quality Division	Aerometric Information Retrieval Systems (Indian Reservations)	U.S. Environmental Protection Agency	Air, Toxins, and Hazardous Waste Branch

**Exhibit II-29**  
**Environmental Considerations**  
**Data Sources for Planning and Project Development**

Environmental Considerations	State Agencies - Data Sources			Federal Agencies - Data Sources		
	Data Base	Agency	Contact	Data Base	Agency	Contact
<b>1. Land Ownership</b>						
Private						
State Lands		Department of State Lands	Land Administration Division			
U.S. Department of Agriculture - Forest Service				Forest Management Plans and Maps	National Forest Service	Forest Supervisors
Tribal - Sovereign Tribal Governments				Land Status Maps and Title Status Reports	U.S. Department of Interior - Bureau of Indian Affairs	State Headquarters or Agency Offices
National Parks					U.S. Department of Interior - National Park Service	Park Headquarters

**POLICY PAPER**

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Tribal - Sovereign Tribal Governments				Land Status Maps and Title Status Reports	U.S. Department of Interior - Bureau of Indian Affairs	State Headquarters or Agency Offices
National Parks					U.S. Department of Interior - National Park Service	Park Headquarters



western Montana about the impacts of population growth and associated development on the environment. MDT has no authority to regulate this growth. The ability to delineate and limit development in environmentally sensitive areas rests with the local jurisdictions.

#### **4. Guide to Environmental Data Sources**

Exhibit II-29 on the following pages provides a guide to environmental information sources that will be required for corridor and project planning.

**POLICY PAPER**

**Exhibit II-29**  
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	Data Base	Agency	Contact	Data Base	Agency	Contact
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U.S. Department of Agriculture - Forest Service				Forest Management Plans and Maps	National Forest Service	Forest Supervisors
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Memorandum of Understanding Establishing A Framework for Cooperation to Sustain Ecosystem, Watersheds, and Communities in Montana" is the type of approach that can ensure good early interagency communication and coordination.

**Improving the environmental information available and the understanding of its implications by MDT staff.** Information on environmental conditions is distributed between many different state and federal agencies. TranPlan 21 has provided an initial inventory of the environmental information and sources that are available. Enhancing access to this information and broadening the understanding in MDT of the implications of certain environmental conditions for planning and project development will more efficiently address environmental concerns.

**Minimizing the impact arising from the encroachment of roadways upon streams and wetlands and from road stream crossings.** Streams and wetlands are very environmentally sensitive areas. Projects that cross streams or encroach on wetlands involve considerable mitigation. Although this can often only be assessed on a project by project basis, in general it will help protect the environment and reduce project costs if encroachment and stream crossings are minimized.

**Ensuring that sensitive wildlife habitat, wildlife travel corridors, and endangered species protection is addressed.** Large portions of Montana's highways pass through endangered and threatened species wildlife habitat. At the project level MDT ensures that this habitat is protected and that mitigation measures are taken to preserve wildlife corridors.

**Ensuring consistency with the state Nonpoint Source Management Plan.** Transportation projects must be consistent with the State Nonpoint Source Management Plan to help meet Clean Water Act requirements. Consistency can be addressed at the corridor and project planning levels. Ensuring consistency would involve establishing and adhering to adequate stormwater management procedures, maintaining compliance with the State Non-point Source Management Plan and water quality standards.

**Addressing vehicle emissions and particulate matter concerns.** The MDT is addressing vehicle emissions and particulate matter problems by reducing its use of road sand, by increasing its fleet of sweepers, and by working with local governments to develop projects funded through the Congestion Mitigation and Air Quality Improvement Program. The MDT's role in addressing mobile source emissions in air quality non-attainment areas is guided by federal conformity regulations and the state Implementation Plan.

**Communicating the limitations of MDT's mandate in the area of growth management and development regulation.** There is significant concern in



Energy use has a number of environmental impacts, including the release of air pollutants from fuel combustion that eventually settle into the water system. The development and distribution of petroleum fuels can also have environmental impacts caused by refinement, spills, evaporation, and others.

Overall, improved highway system efficiency that reduces roadway congestion and transportation system management that reduces stop and start traffic reduce energy consumption. The use of public transportation and other transportation demand management measures can also reduce energy consumption.

### 3. Transportation and Environmental Planning

TranPlan 21 identified the key long range challenges for ensuring that transportation planning supports environmental protection objectives. The ability to address these issues will vary according to their type and extent.

**Ensuring that environmental impacts are minimized and addressed in a cost effective manner.** There are many cases where the project development process is delayed by the procedures necessary to address environmental review and permitting requirements. This can involve additional design work and other mitigation measures. Transportation system development must comply with a number of federal and state laws; permits are required and approval from a range of regulatory agencies is necessary. The time delays inherent to securing permits and approvals from agencies having jurisdiction over major transportation projects are often compounded by a number of factors. For example, in many cases environmental concerns are identified only after project planning is largely complete, thereby mandating costly modifications to project design.

Ensuring early coordination with federal and state agencies streamlines and improves the effectiveness of the environmental protection and permitting process. At the federal level the Federal Highway Administration, the US Army Corps of Engineers, and the Environmental Protection Agency recognize that environmental protection can be most effectively ensured through early coordination and communication. This is equally applicable at the state level.

Careful review of the procedural steps to ensure that environmental considerations are identified and addressed early in the planning process could improve environmental outcomes and reduce project costs. If environmental concerns are addressed after right of way has been acquired and design work undertaken through the permitting process often the only course of action is to mitigate the existing project. Whereas a different project might have been chosen or a different solution developed if the environmental concerns and costs had been known prior to project selection and development. The proposed "Interagency

**k. Visual quality and aesthetics**

Preserving the visual appeal of Montana is an objective of the MDT. However, visual quality and aesthetics are difficult to accommodate at the planning level. Therefore, consideration of these factors is most common at the project level.

Because it is a qualitative measure, no data base exists concerning the aesthetic or visual qualities of the Montana transportation system. However, policies concerning billboards along Montana transportation corridors are currently under evaluation. In addition, MDT's proposed scenic byway program aims to preserve and enhance the visual quality and aesthetics of key corridors.

**l. Energy**

Transportation in Montana, like the rest of the nation, is energy intensive. In 1992, the state consumed 598,989,000 gallons of motor fuel, or over 700 gallons per person, 77 percent of which was comprised of gasoline. This represented a 5.5 percent increase over 1991 (Federal Highway Administration, 1992). Montana's intensive reliance on petroleum fuels is largely due to the rural development pattern of the state and the lengthy distances between destinations. In fact, only South Dakota has more rural travel characteristics than Montana. These characteristics are compounded by the tendency of Montanans to drive alone, a lack of travel alternatives to the private automobile, and the growing number of vehicle miles travelled.

For the United States as a whole, data indicate that between 1970 and 1991, energy efficiency increased for all passenger modes, except transit buses and rail transit. Transit buses became less energy efficient for a number of reasons, including a decline of ridership. As a result of Corporate Average Fuel Economy standards and rising gasoline prices during the early 1980s, automobiles in 1991 were more than 34 percent more fuel efficient than in 1970, on a per passenger-mile basis. However, highway use of petroleum increased 13.7 percent during the same time period due to increases in the number of vehicle miles traveled. Highway system improvements have reduced congestion and unnecessary speed changes so that vehicles can now operate more efficiently. The efficiency of all freight modes also improved between 1970 and 1991, when measured on a per vehicle mile basis. The amount of fuel burned per unit of freight hauled declined as a result of load-size increases and slight improvements in operating efficiency (US Department of Energy, 1994).

**i. Historic and archeological sites**

Historic and archeological sites and artifacts are important to American heritage. However, most sites are discovered or unearthed during project implementation. The discovery of a historic or archaeologically significant site often causes costly project delays that are very difficult to avoid.

Known historic and archaeologically significant areas are documented by the Montana Historical Society and the U.S. Department of Interior, Bureau of Indian Affairs. These sources may help to identify areas where concentrations of historic and archaeological sites or artifacts exist.

When a historic site is found, it is evaluated to determine its importance and eligibility for listing in the National Register of Historic Places. Eligibility is contingent upon several factors that seek to preserve actual or symbolic structures, buildings, sites, and objects that were instrumental in United States history (National Register Bulletin 16). Archeological sites are subject to essentially the same regulation as historic sites. However, unlike historic preservation, archeological objects can often be moved without causing the loss of their historic value.

**j. Hazardous waste sites**

Hazardous waste comprises a broad range of environmental considerations. Included in this category are abandoned mines, Superfund sites, underground storage tanks, landfills, and other locations with potentially dangerous man-made hazards. Hazardous waste sites are scattered across the state.

The location and severity of known hazardous waste sites can be identified prior to advance transportation planning and programming by coordinating with the Montana Department of State Lands, Abandoned Mines Bureau and the Montana Department of Health and Environmental Sciences (Montana Index of Environmental Permits, 1993). Additional information concerning hazardous waste can be found at the regional office of the Environmental Protection Agency, located in Helena, where Superfund site information is available.

Information derived from state and federal sources should be used during the creation and evaluation of project alternatives.



Highway Administration, state transportation departments must consult with federal agencies to determine the presence or absence of protected species. In addition, the MDT must assess the project area for other proposed and Category 1 species. In some cases, the MDT can negotiate with the Fish and Wildlife Service when a preferred alternative encroaches upon endangered or threatened species habitat. However, projects that cannot be exempted from protective laws are ineligible for federal funding (Federal Highway Administration, 1987).

### Exhibit II-28 Threatened and Endangered Species in Montana, 1994

Environmental Consideration	Species	MDT District
Endangered Species	Bald Eagle	All
	Peregrine Falcon	All
	Whooping Crane	1, 2, 4, and 5
	Least Tern	1
	Black-Footed Ferret	3, 4, and 5
	Gray Wolf	All
	Pallid Sturgeon	3, 4, and 5
	White Sturgeon	1
Threatened Species	Grizzly Bear	1, 2, 3, and 5
	Piping Plover	3 and 4
	Water Howellia	1
Category 1 Candidate Species	Bull Trout	1, 2, and 3
	Mountain Plover	2, 3, 4, and 5
	Fluvial Arctic Grayling	2

Source: United States Department of Interior, Fish and Wildlife Service. 1994.



governments. Some local governments manage floodplains within their municipal boundaries, while most others rely on the state to enforce minimum statewide standards (Montana Index of Environmental Permits, 1993).

**g. Wild and scenic rivers**

The National Wild and Scenic Rivers System is designated by the federal government. Designated rivers are managed by either the National Park Service, the Fish and Wildlife Service, the Bureau of Land Management, or the Forest Service. Federal regulations are concerned primarily with adverse effects on the natural, cultural, and recreational values of the Wild and Scenic Rivers. "Adverse effects include the alteration of the free-flowing nature of the river, alteration of the setting, or deterioration of water quality" (Federal Highway Administration, 1987).

Three branches of the Flathead River are designated as Wild and Scenic River systems: the North Fork, the Middle Fork (to Bad Rock), and the South Fork (above Hungry Horse Reservoir). Portions of the Missouri River, north of Lewistown, are also part of this system. If a transportation project is anticipated to have a negative impact on a Wild and Scenic River or adjacent land, the MDT must identify all possible means of mitigation. These efforts should be fully detailed in an environmental impact study.

**h. Threatened and endangered species**

The protection of threatened and endangered species has become a national priority. The MDT is required to avoid the habitat of threatened and endangered species whenever possible.

Threatened and Endangered Species are classified by the United States Department of Interior, Fish and Wildlife Service. There are eight endangered species and three threatened species in Montana (Fish and Wildlife Service, 1994). The known locations of these species are identified by classification in Exhibit II-28. In addition, Category 1 Candidate Species are included because their presence mandates a biological review to ensure that their habitat is not encroached upon (Federal Highway Administration, 1987). There are no proposed species in Montana and threatened and endangered species maps do not account for migratory lands or other land areas used by threatened and endangered species.

The MDT is responsible for identifying potential transportation impacts on endangered or threatened species habitat. According to the Federal

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Corps of Engineers. In addition, a permit is required under Section 404 of the Clean Water Act for the placement of any dredged or fill material into United State's waters or wetlands" (Montana Index of Environmental Permits, 1993).

Project environmental assessment reports should detail the location of all water bodies subject to 124 or 404 permits and the environmental impact study, if required, should discuss the extent of anticipated modifications. These modifications include virtually any man-made change to the natural flow and character of the water body. State efforts to identify and mitigate modifications should be coordinated with the U.S. Fish and Wildlife Service.

The implication of these requirements is that to reduce environmental impacts and hence environmental permitting requirements, the number of highway stream crossings should be minimized. Taking the presence of stream crossings into consideration at the planning level will also provide a better estimate of project timing and costs.

**f. Floodplains**

In order to minimize danger to life and property, local and state agencies restrict development in floodplains. These restrictions also apply to transportation infrastructure.

National Flood Insurance Program regional maps, developed by the Federal Emergency Management Administration, are the most comprehensive source of floodplain information. A 100-year flood flow is established for the base, which outlines the floodplain area. However, although Federal Emergency Management Administration maps cover the majority of the state, the level of detail is improved by the Montana Department of Natural Resources and Conservation Floodplain Office. The most reliable documentation of floodplains can be found at the local level, where county planning offices are responsible for maintaining detailed floodplain maps (Montana Department of Natural Resources and Conservation Floodplain Office, 1994). Combined, these sources provide a good overview of pre-existing floodplain conditions.

Similar to other environmental considerations, anticipated transportation project impacts on floodplains should be evaluated for their extent and severity, alternatives should be identified, and mitigation strategies should be listed if no acceptable alternatives are feasible (Federal Highway Administration, 1987). The Montana Department of Natural Resources and Conservation reviews proposals and issues permits for projects that encroach or cross designated floodplains that are not regulated by local



**d. Wetlands**

Avoidance and/or minimization of impacts to wetlands and streams by highway improvements is a state and federal policy goal. In recent years wetlands have become the subject of increased government protection. The three classes of wetlands in Montana are defined as areas with a presence of hydrophytic vegetation, hydric soils, and wetland hydrology: Category I-ponds, Category II-marshes, and Category III-stream zones (Draft Environmental Impact Statement, F-501(9)6, U.S. Highway 93 Evaro-Polson, Missoula and Lake Counties, Montana, 1994).

Transportation impacts on wetlands are evaluated in the context of the wetland's importance, for example ground water recharge or wildlife habitat, and the severity of the impact, over the short and long term.

If a proposed MDT project is in conflict with a wetland an environmental impact study must detail the type, quality, and function of the wetland involved. Next, the environmental impact statement must describe the impacts of the proposed transportation project on the wetland, evaluate alternatives that would avoid negative impacts, and consider practical strategies to mitigate unavoidable damage. If negative impacts cannot be avoided, a detailed explanation and a mitigation plan should be presented (Federal Highway Administration, 1987).

**e. Water body modification and wildlife**

Any alteration to the natural features of a water body is regulated by state and federal governments. The intent is to protect the quality of wildlife habitat.

Transportation projects that may alter "...the bed or banks of any stream or river in Montana" require a Stream Protection Act permit from the Department of Fish, Wildlife, and Parks, Fisheries Division (Montana Index of Environmental Permits, 1993). Stream Protection Act permits, also known as "124 permits", are issued on the basis of impacts to fish and game habitat. These permits are only issued after the Department of Fish, Wildlife, and Parks has determined that the proposed project poses no risk or that the mitigation efforts are adequate. The Department of Fish, Wildlife, and Parks maintains a data base of water bodies requiring 124 permits.

Any project that involves federal waterways is regulated by the United States Army, Corps of Engineers. "Under Section 10, Rivers and Harbors Act of 1899, any structure or work on, over, or under navigable waters requires authorization from the U.S. Department of the Army,

**b. Air quality**

The primary air quality concern in Montana is conformance with federal pollution standards. National Ambient Air Quality Standards are defined by the United States Environmental Protection Agency for a variety of pollutants, including carbon monoxide and suspended particulate matter. These toxins are by-products of vehicle operation, industry, agriculture, and other sources. Missoula, Billings, and Great Falls do not meet standards for carbon monoxide. Several other communities are in violation of particulate matter standards. They include: Butte, Columbia Falls, Kalispell, Lame Deer, Libby, Missoula, Polson, Ronan, Thompson Falls, and Whitefish.

The implications of being a "non-attainment area" involve a series of efforts intended to improve air quality. Specific measures to ensure conformance with federal standards will be outlined in the forthcoming State Implementation Plan Conformity Revision (Air Quality Bureau, 1994).

**c. Water quality**

Water quality is a growing concern in Montana. Roadway run-off and its impact on stream and water body quality has become an issue across the state. The principle linkage between water quality and the transportation system is roadway run-off, which is a non-point pollutant. Oil, rubber, fuel, and other vehicular by-products that cause roadway run-off have prompted state and federal regulations designed to control pollution.

At the federal level, the Environmental Protection Agency ensures compliance with the Clean Water Act. Statewide, the Montana Department of Health and Environmental Sciences, Water Quality Bureau enforces water quality standards mandated by the Administrative Rules of Montana. Coordination between MDT and the Environmental Protection Agency is recommended to address stormwater management and consistency with the State Nonpoint Source Management Plan for clean water. MDT efforts to identify potential water quality impacts related to transportation projects and the development of alternatives or mitigation strategies could produce effective outcomes when formulated in unison with the Environmental Protection Agency and the Water Quality Bureau.

**(8) Bureau of Land Management and other lands**

Similar to other land classifications, the jurisdictional boundaries and the preexisting environmental conditions on Bureau of Land Management lands are important to the MDT. Coordination between different levels and branches of government can become complex and time consuming, depending upon the degree to which goals and objectives conflict.

The Bureau of Land Management divides the state into six areas, each having a representative office. These offices maintain regularly updated statewide and area maps that detail the boundaries of Bureau of Land Management, private, and other land. Further information regarding non-Bureau of Land Management land is available through the Montana Department of Fish, Wildlife, and Parks, who maintain a parks inventory. No formal data base currently exists that documents existing environmental conditions on Bureau of Land Management land.

**(9) Agricultural lands**

Agricultural lands are classified under the authority of the 1981 Farmland Protection Policy Act that seeks "...to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses." Four classes shape the hierarchy of farmland: Prime, unique, farmland of statewide importance, and farmland of local importance.

The United States Department of Agriculture, Soil Conservation Service maintains a data base of prime and unique farmlands. Information contained in this data base can be accessed on a broad statewide basis, in the form of county maps, or from detailed aerial photographs (U.S. Department of Agriculture-Soil Conservation Service, 1994).

In general terms, transportation projects that call for either the conversion of farmlands or otherwise adversely affect them are required to evaluate alternatives. Alternative strategies may include corridor realignments or other methods to avoid negative farmland impacts. If alternatives do not reduce or eliminate potential negative impacts, mitigation strategies should be included in the project proposal or plan (Federal Highway Administration, 1987).



Title Status Reports document Indian reservation land ownership similar to a deed. These reports document the physical and legal land rights associated with ownership. Other information available from the Bureau of Indian Affairs include regularly updated maps of roads on reservations and environmental reviews of specific parcels of land. Environmental reviews are performed only at the time of title transfer, leaving a majority of tribal lands unassessed (Bureau of Indian Affairs, 1994).

Information concerning tribal land ownership and known environmental conditions can be found at the Montana branch of the Bureau of Indian Affairs, headquartered in Billings. In addition, a number of the reservations have started to develop detailed land use inventories identifying critical and sensitive areas.

**(6) National Park land**

Two national parks occupy portions of Montana. Glacier National Park covers parts of MDT districts 1 and 3 and the portion of Yellowstone National Park in Montana is all within district 2. National parks are managed by federal agencies, independently of the state. However, issues concerning park boundaries, transportation access, and environmental protection mandate coordination between the National Park Service and the MDT.

Similar to national forests, maps documenting the boundaries of national parks are available from the Bureau of Land Management (Bureau of Land Management, 1994). Statewide and local township-level area maps are available from the state headquarters or from field offices located throughout the state. More intensive environmental information is available from park headquarters or the United States Department of Interior, National Park Service.

**(7) Recreation and parklands**

Numerous state, county, and community parks exist within Montana. Numerous other public and private recreational areas are also present across the state. These areas have cultural, economic, tourist, and other values that can be affected by transportation projects and programs.

The identification of these areas prior to advanced project and program planning or development yields better decision making and management.



Documentation of existing environmental conditions generally does not exist prior to a site specific environmental assessment, when issues are identified by the Department of State Lands in conjunction with other state and federal agencies. Although the Department of State Lands does not maintain a data base of environmental conditions, documentation does exist for some previously studied areas and some leased lands (Montana Department of State Lands, 1994).

Environmental conditions on state lands, in relation to transportation infrastructure, are typically only identified once an application for a right of way is filed. Once the application is entered an environmental assessment is performed to determine impacts to the physical environment and human population (Checklist Environmental Assessment, 1994).

**(4) Forest Service land**

The construction or expansion of transportation infrastructure on Forest Service lands involves the identification of jurisdictional boundaries and interjurisdictional cooperation. Lease-hold agreements, right of way easements, and other factors can become issues on Forest Service land. However, other environmental issues can also be present, often relating to forest management concerns.

National forests are managed by the United States Department of Agriculture, Forest Service. Jurisdictional boundaries and lease holders are documented by forest management plans and maps, in addition to United States Department of Interior, Bureau of Land Management maps (Bureau of Land Management, 1994).

Specific information concerning the ten national forests in Montana can be obtained from forest supervisors.

**(5) Tribal land**

Indian reservations in Montana are recognized as sovereign governments and accordingly have independent decision making authority. Therefore, the MDT must coordinate its planning and programming efforts with tribal governments when reservation lands are involved. According to the Bureau of Indian Affairs, the federal liaison with tribal governments, documentation of existing environmental conditions on reservations is largely incomplete.

- (b) The action includes all possible planning to minimize harm to the property resulting from such use."

This act ensures that the conversion of these categories of public lands for transportation purposes are adequately analyzed and that transportation is indeed the highest and best use of the land. A large amount of land in Montana falls under this requirement. Whether or not a road passes through park land is therefore very important for corridor and project planning.

**(2) Private land**

The regulation of private lands is largely a local government function. There is no county wide zoning in any county in Montana. Therefore, right of way problems that complicate the project development process occasionally arise. Other environmental hazards, such as underground storage tanks, can also be found on private lands. These hazards can be problematic for the MDT because they are often not acknowledged until after a project has been initiated. Mitigation of environmental conditions often adds to the cost of projects and can cause lengthy delays.

The identification of preexisting environmental conditions on private lands is often difficult due to a general lack of documentation. These lands are regulated by local governments. Unlike other states little information can be obtained from local inventories of land ownership and applicable land use regulations. Information regarding private land ownership and known conditions does not exist in any detail at the municipal or county level.

Private lands are subject to all normal environmental regulations and restrictions, but the interest of the MDT most often lies in the preservation of rights of way and related easements.

**(3) State land**

Similar to private lands, environmental conditions on state lands are often not documented. State lands are often leased to private parties for agricultural, mining, or other uses under the premise that any potential negative impacts will be avoided or mitigated.

In Montana, state lands are monitored and controlled by the Department of State Lands, Land Administration Division.

- Land ownership.
- Air quality.
- Water quality
- Wetlands.
- Water body modification and wildlife.
- Floodplains.
- Wild and scenic rivers.
- Threatened and endangered species.
- Historic and archeological sites.
- Hazardous waste sites.
- Visual quality and aesthetics.
- Energy.

These environmental considerations affecting transportation improvements and system management are described in turn. The environmental regulations and their implications are discussed briefly. In general the regulation of each of these environmental considerations requires, at the project level, the identification of alternatives to anticipated impacts, and methods of mitigation for unavoidable consequences. The source of additional information about each consideration is provided. Exhibit II-29 at the end of this section, provides a reference guide to state and federal agencies involved with environmental regulation and the data bases that are available that describe pre-existing environmental conditions.

**a. Land ownership**

The compatibility of land uses with the transportation infrastructure and efforts to preserve rights of way are the most critical land ownership issues facing the MDT. Land owners include private parties, local governments, state and federal agencies, and tribal governments. Local, state and federal regulations affect each of these entities differently.

**(1) Publicly owned park land**

Highway improvements on any type of publicly owned park land are subject to very specific requirements. Title 23 of the Code of Federal Regulations 771.135, Section 4(f) of the Department of Transportation Act, applicable to transportation-public land conversion proposals, states that "The (Federal Highway Administration) may not approve the use of land from a significant publicly owned park, recreation area, or wildlife and waterfowl refuge or any significant historic site unless a determination is made that:

- (a) There is no feasible and prudent alternative to the use of land from the property; and

## 2. Preexisting environmental conditions

To integrate environmental concerns into transportation planning, TranPlan 21 describes the impacts of preexisting environmental considerations on project development, identifies those areas of the state with the greatest environmental sensitivities, and provides a comprehensive inventory of data sources on environmental conditions. In this way, TranPlan 21 provides information that can be used to identify, prior to advance planning, transportation related environmental issues that could arise.

Although the information presented is not exhaustive, it does provide a listing of environmental considerations that are important from a statewide perspective and are regulated by state or federal agencies. The information presented can in no way be a substitute for project specific environmental assessments or environmental impact statements, rather it is intended to help to identify preexisting conditions and thus more accurately scope project alternatives and costs.

Highway construction, reconstruction, maintenance, and the use of Montana's transportation system by all modes has some environmental impacts. The significance of these impacts depends upon the environmental sensitivity of the areas in which improvements are being made. Environmental impacts of high concern include the conversion of agricultural land, loss of wetlands, loss of habitat for endangered species, storm water runoff and many others.

Preexisting environmental conditions describe those environmental considerations that must be mitigated at the project level. For example, a wetland or a stream is a preexisting environmental condition which, if affected by a proposed project, must have any adverse impacts appropriately mitigated. A key planning need is to improve the information and understanding available about preexisting environmental conditions so that they can be taken into consideration prior to project selection and design.

The Federal Highway Administration's 1987 Technical Advisory Guidebook describes the environmental considerations evaluated during environmental assessments and environmental impact studies. The conditions relating to environmentally sensitive areas and the natural environment are described below. Economic and social impacts and land use are addressed elsewhere. Considerations not applicable to Montana, for example coastal zones and coastal barriers, and project specific considerations, such as construction impacts are not discussed.

The following lists the key environmental considerations that affect the management and development of the transportation system:



- Ensuring that there is an established process for effective early communication and coordination between the different local, state and federal agencies involved with transportation and environmental protection.
- Recognizing the need to have information, and understand its implications, about the environmental conditions which project planning could impact, early on in the project development process.

## **1. Effective early coordination and communication**

At the federal and state levels there are a number of agencies with complex and overlapping mandates and different missions in the areas of environmental planning, permitting and document processing that affects the transportation system. The relationship between transportation and the natural environment is formally recognized by the Intermodal Surface Transportation Efficiency Act, the National Environmental Policy Act, the Clean Air Act and its amendments, the Clean Water Act of 1977, Endangered Species Act of 1977, and several other mandates. These mandates are all addressed in transportation investment decisions and project development.

TranPlan 21 recognizes that the key environmental planning issue for transportation is the need to address environmental considerations prior to project design through better coordination and communication. Currently, environmental impacts are usually addressed at the project level. This is because our regulatory procedures are designed to identify the environmental impacts of a proposed project and then ensure that the appropriate mitigation steps are taken to reduce them.

The following steps are needed to ensure that environmental considerations are most effectively addressed:

- **Improved information about preexisting environmental considerations to address environmental protection prior to project development.** Identifying environmentally sensitive areas early on in the project development process will benefit environmental protection efforts by ensuring that environmental issues are addressed proactively, rather than through reactive mitigation.
- **Coordination and communication with federal and state agencies regarding environmental considerations prior to project development.** Improved interagency coordination and cooperation can engage the primary agency responsible for the management and regulation of specific environmental considerations in helping to define transportation solutions that are affordable and have less environmental impact.

concentration of older residents may have a greater need for effective transit or paratransit programs. Older residents, 75 years or older, live throughout the state of Montana but population forecasts indicate that the numbers will increase primarily in urban counties, as shown in Exhibit II-27.

**Exhibit II-27**  
**Forecast Distribution of Elderly Population Through 2010**

	Residents 75 Years or Older 1990	Residents 75 Years or Older 2010	Annual Percent Change 1990 - 2010
Montana Total	45,790	50,710	0.5
Urban County Total	23,560	28,000	1.0
Cascade	4,220	5,060	1.0
Flathead	3,190	3,490	0.5
Gallatin	1,820	2,360	1.5
Lewis & Clark	2,330	3,300	2.1
Missoula	3,520	4,400	1.0
Silver Bow	2,620	2,310	-0.5
Yellowstone	5,860	7,080	1.1
Rural County Total	22,230	22,710	0.1

Source: National Planning Association Data Services

## **B. ENVIRONMENTAL CONSIDERATIONS**

Managing the existing transportation system and meeting new mobility needs in a manner that protects the environment and helps to preserve the unique quality of life in Montana is an important transportation planning goal. The quality of Montana's natural environment is important to its citizens and the state's future economic well being. The natural environment and the amenities that it offers support economic diversification. For example, there are now more Montanans dependent upon outfitting than lumber for their employment.

The approach taken to address environmental protection at the long-range planning level adopted in TranPlan 21 involves two interrelated elements:

## Exhibit II-26 Projected Per Capita Income

MDT Financial District	Projected Per Capita Income, 2010
Montana Average	\$17,661
Northwestern Region	16,011
Southwestern Region	17,011
Northcentral Region	18,128
Southcentral Region	18,289
Eastern Region	18,325

### c. Age composition

According to the 1990 census, Montana has 60,820 residents between the ages of 65 and 74 and 45,790 persons older than 75. Residents over the age of 75 are among the most likely to have physical difficulties that prohibit driving. For these residents, access to transportation from family, friends or transit service is often most critical. The number of Montana residents in the 75 year or older age category is projected to increase about 0.5 percent per year over the next two decades which is slower (about one-half) the annual growth rate projected for the population as a whole.

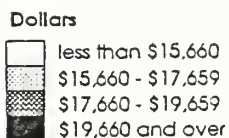
Of importance for future transportation planning is the fact that Montana's oldest residents live throughout the entire state. In 1990, approximately one-half of the residents 75 years or older lived in rural counties outside of major population centers. While future growth of these older residents is expected to occur primarily within Montana's seven major metropolitan areas, a significant number will continue to live in rural communities.

A particular challenge rises out of the fact that low-income and elderly residents are dispersed widely throughout the state. Meeting the transportation needs of these special population groups is both logistically difficult and potentially expensive. Creative paratransit and transit solutions appropriate for low population density regions will be required.

The age composition of Montana's population affects transportation demand. Older residents are more likely to have personal mobility



## Projected Per Capita Income by County, 2010



Source: National Planning Association Data Services



## **5. Social Changes**

Population growth, changes in the age composition of employment, and household income are all social considerations that will affect the demand for transportation into the next century.

### **a. Population change**

Population growth forecast by county is shown in Exhibit II-3. Overall population is projected to grow twice as fast in the seven major urban counties compared to the remainder of the state. In Montana's predominantly rural eastern region, population decline is projected for a number of counties.

### **b. Personal income**

The numbers of people living in different regions of the state are an important consideration in planning for the future statewide transportation system. The resources available to the local population is another important factor. For example, lower income residents may have more difficulty in purchasing and maintaining adequate personal transportation. In addition, counties with a higher proportion of low income residents often have less local resources to maintain and improve local components of the transportation system.

The 1990 Census of Population reported Montana's per capita personal income \$13,348 compared to over \$16,500 for the United States. National Planning Association Data Services estimates that Montana's personal income will increase by approximately 33 percent over the next twenty years. However, while making advances, Montana's per capita income is expected to remain well below the U.S. average.

A comparison of projected 2010 personal income for Montana's counties is shown in Exhibit II-25. Projected per capita income for most counties falls within \$2,000 either above or below the statewide average of \$17,661. In general, counties in the western half of the state tend to have projected incomes below the statewide average and counties in the eastern half of the state tend to have projected incomes above the average expected for Montana in the year 2010, as evident in Exhibit II-26. This difference is partly explained by the relatively heavy concentration of seasonal occupations in timber, recreation and tourism in the western half of the state compared to the east.

## Exhibit II-24

### Per Capita Private Service Earnings

MDT Financial District	Annual Percent Change 1990 - 2010
Montana Average	83
Northwest District	98
Southwest District	98
Northcentral District	66
Southcentral District	81
Eastern District	74
Eastern Region	7.48

Rural locations are becoming increasingly feasible as a profitable location for emerging new service businesses. A growing number of highly skilled professionals are choosing small rural communities for the perceived quality of life and utilizing electronic media to tap into information sources and world markets. An example cited in a recent New York Times article is Jim Stack, who runs Investitech Research, a high-tech investment consulting firm. Mr. Stack employs nine people and serves about 15,000 clients, including corporations, 97 percent of whom are outside Montana. Investitech operates out of a 6,500 square foot combination home-office located on Whitefish Lake. The growing number of rural service businesses such as Mr. Stack's have much different transportation needs than the traditional rural industries. In particular, convenient access to air passenger service, quality telecommunications and frequent package delivery service are important considerations.

Overall, expectations for future development of Montana's private service economy suggests new demands for the statewide transportation system, particularly in rural counties. Rural counties located adjacent to Montana's established population centers and those near National Parks and major recreation destinations are the most likely to be impacted by changing transportation needs. Transportation systems that provide rural residents with access to services in urban centers such as health care will continue to be an important need.

### Exhibit II-23 Montana's Most Rapidly Growing Service Industries

Service Sector	Labor Earnings 1987 (millions)	Labor Earnings 1992 (millions)	Earnings Growth 1987-92 (millions)	Percent Earnings Growth 1987-92
<b>Retail Trade</b>				
Eating & Drinking Places	194,720	284,996	90,287	46.63%
Auto Dealers & Service Stations	146,672	209,082	62,410	42.55%
Food Stores	137,713	188,864	51,151	37.14%
<b>Personal &amp; Business Services</b>				
Health Care	582,508	878,197	295,689	50.76%
Finance, Insurance & Real Estate	311,342	396,969	85,627	27.5%
Amusement & Recreation	45,498	95,963	50,465	110.92%
Engineering & Management Services	120,500	194,117	73,617	61.09%

To some extent the more rapid growth of rural service-related businesses reflects the influence of Montana's growing tourism and recreation industries. In addition, decentralization of services from urban centers to rural counties reflects a nationwide trend that began in the late 1980s. U.S Bureau of Economic Analysis statistics indicate that between 1989 and 1991 service-related employment grew significantly faster in the nation's nonmetropolitan counties compared to metropolitan areas. This trend is expected to continue throughout the next decade.



**Exhibit II-22**  
**Private Services Concentrated in Urban Centers**  
**But Future Growth in Rural Counties is Anticipated**

	Per Capita Private Service Earnings 1990	Per Capita Private Service Earnings Projected 2010	Annual Percent Change 1990 - 2010
Montana Average	\$3,978	\$6,349	5.84
Urban County Average	5,027	7,694	5.31
Cascade	5,265	7,882	4.97
Flathead	3,978	6,349	5.96
Gallatin	4,125	6,801	6.40
Lewis & Clark	4,971	7,933	5.96
Missoula	4,886	7,192	4.72
Silver Bow	4,168	6,837	6.40
Yellowstone	6,190	9,243	4.93
Rural County Average	2,361	3,910	6.56

Source: National Planning Association Data Services

A closer examination of projected private service sector growth indicates a modest trend toward future decentralization of private service activity as a result of expanded growth in Montana's rural counties. Overall per capita earnings from private services are expected to grow at an annual rate of 6.6 percent in rural counties compared to only 5.3 percent in urban counties.

Significant private service rated growth is expected for nearly all Montana Counties. The most rapid growth is expected in urban centers and their surrounding rural counties. However, several of the more isolated rural counties such as Blaine, Valley, Garfield, Wibaux and Rosebud also are projected to have growth rates of private services faster than the statewide average of 83 percent between 1990 and 2010.

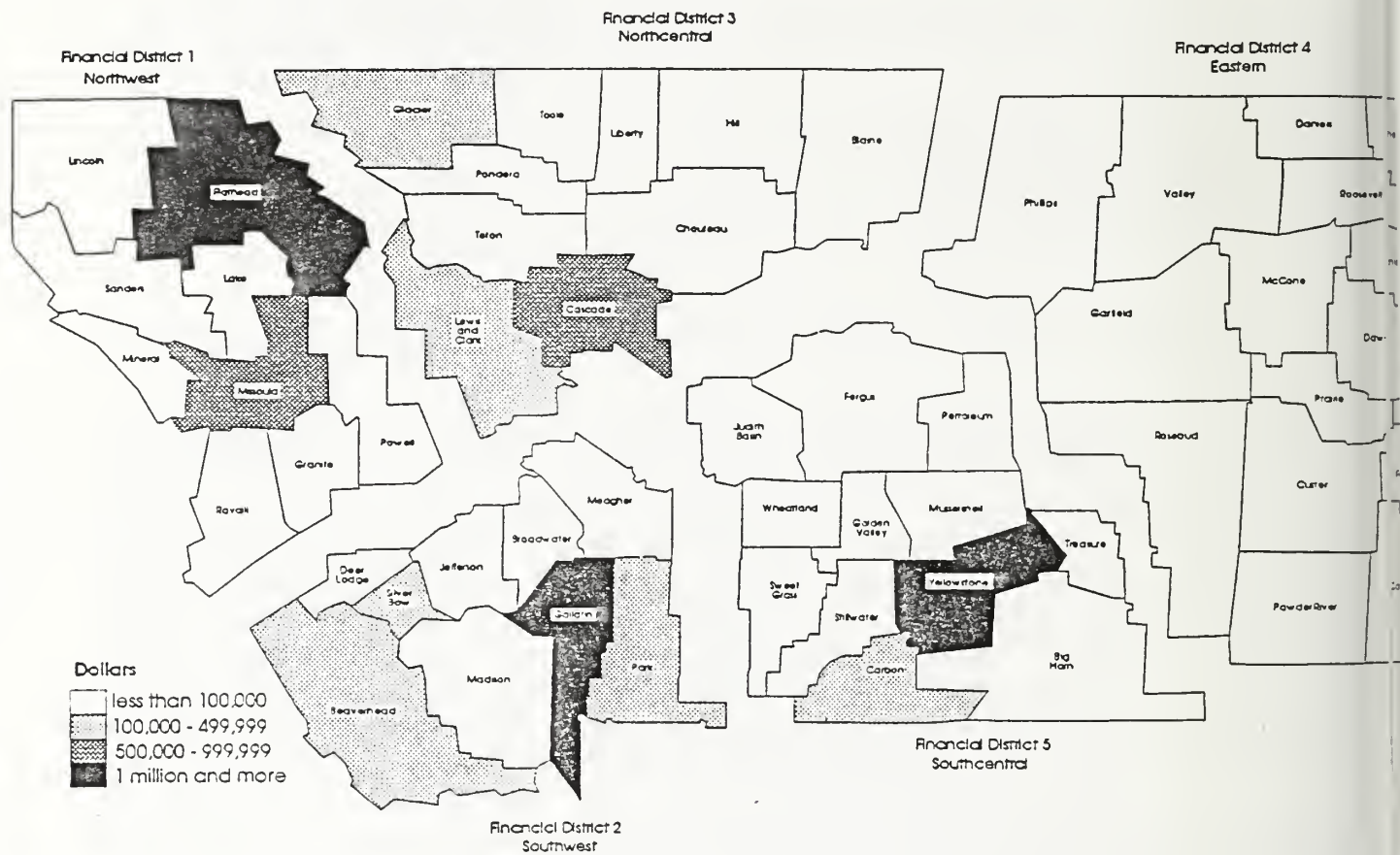


**Exhibit II-21**  
**1993 Accommodations Tax Collections**

MDT Financial District	Accommodations Tax Collections, 1993
Montana Total	\$7,963,585
Northwestern Region	2,231,932
Southwestern Region	2,477,081
Northcentral Region	1,508,148
Southcentral Region	1,360,651
Eastern Region	382,720

Nonresident travel along with changing consumer and business needs have contributed to a major growth of private service-related activity in nearly all Montana counties. Historically, service-related businesses have tended to concentrate in major population centers. To illustrate, a comparison of Montana's rural and urban county private service sector earnings per capita appears in Exhibit II-22. Counties that draw customers from outside their local boundaries have the highest level of service earnings per capita. Residents of counties with relatively low service earnings per capita are more likely to commute elsewhere for a significant portion of their service needs. On average, 1990 private service earning per capita are more than twice as high in Montana's seven major urban counties compared to rural counties. This data reflects a trend towards the development of service centers in larger population centers. These service centers provide for the needs of their local population as well as residents of surrounding rural counties.

## Accommodations Tax Collections, 1991

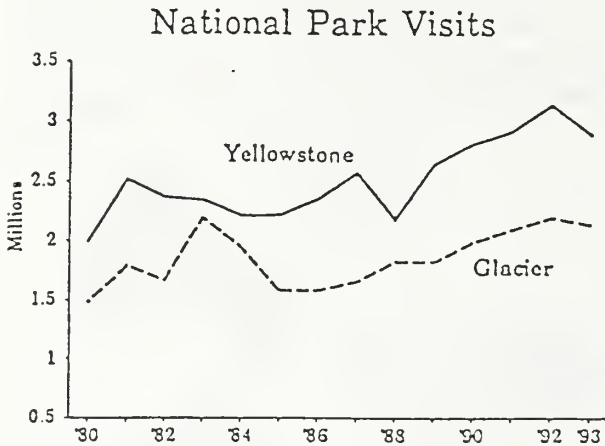


Source: Montana Department of Commerce

upswings and downswings over the next twenty years but continue the general growth trends of the past five years.

The growth of Montana tourism raises new issues for statewide and regional transportation planning. In particular, as visitor numbers increase, traffic volumes on key routes utilized by tourists also increase. Particularly for destination areas served by secondary roads, issues of congestion and potential safety problems may become more prevalent.

## National Park Visits and Ski Visits, 1980 to 1993



Charts prepared by The University of Montana,  
 Bureau of Business and Economic Research

Exhibit prepared by The University of Montana,  
 Bureau of Business and Economic Research

The geographic location of tourism affects transportation demands. County level accommodations tax collections are one measure of the regional focus of travel and tourism within Montana, as shown by Exhibit II-20 and Exhibit II-21. Three Montana Counties (Flathead, Gallatin and Yellowstone) had accommodation tax collections in excess of one million dollars in 1993. Each of these counties are a center of business travel as well as in close proximity to major tourism destinations.

Nonresident travel and tourism is expected to continue to grow over the long-term. Several trends including a growing population in the United States and Canada with increased leisure time will contribute to continued growth of tourism. As Montana's economy continues to grow, additional business travel can be expected. However, the extent of future growth is closely linked to both national and international economic trends. For example, international exchange rates, particularly with Canada, make it less attractive for Canadians to visit the United States. In times of national economic recession, Americans have less discretionary income to spend on tourism and business travel is more limited. Consequently, nonresident travel in Montana is expected to go through modest



#### 4. Tourism

Montana's service sector is benefiting from significant growth in tourism and recreational travel. The University of Montana's Institute for Tourism and Recreation Research estimates that more than 6 million nonresidents entered Montana by car in 1993. This compares to an estimated 4.5 million nonresident visitors entering Montana by car during the mid 1980s. Montana airport deboarding also grew substantially over the past three years at airports serving tourist destinations. Nearly one million nonresident visitors entered Montana by air in 1993.

Montana's National Parks and ski resorts are among the most popular travel and tourism destinations. Visitor counts at both National Park and ski areas have increased steadily during the 1990s.

Private services are projected to continue to grow at a rapid pace over the next twenty years as shown in Exhibit II-17 below.

**Exhibit II-17**  
**Wages, Salaries and Business Profits**  
**Average Annual Growth Rate -- 1990-2010**

	Annual Percent Growth Rate 1990 - 2005
Elderly care	4.5
Computer and data processing services	4.4
Hospital services	4.0
Management and public relations consulting	3.9
Water and sanitation services	3.3
Vocational and other schools	3.3
Office of health practitioners	3.1
Travel agents	3.0
Social services	3.0
Equipment rental and leasing	3.0

Source: National Planning Association Data Services

The rapid growth of private services in Montana mirrors economic trends throughout the entire nation. Nationwide, the top ten growth industries identified by the U.S. Bureau of Labor and Statistics are all service-related categories, they are shown in Exhibit II-18. Much of the service growth in Montana and the United States is due to an aging and more affluent population, a growing demand for business support services as well as an expanded concern for environmental quality. Health care and elderly care, for example, are at the top of the list of growth industries in Montana as well as for the nation as a whole. Along with the expanded use of personal computers in the workplace, comes the need for businesses that provide computer and data support services. An increasingly complex and rapidly changing business environment has generated demand for legal and other services such as management consulting. Concern for environmental quality has spawned the need for specialized services such as water and sanitation.

## Exhibit II-16 Manufacturing Wages, Salaries and Business Profits

MDT Financial District	Annual Percent Change 1990 - 2010
Montana Average	30
Northwest District	33
Southwest District	57
Northcentral District	-22.5
Southcentral District	23
Eastern District	53

Montana's decentralization of manufacturing into more rural areas is consistent with national trends. The growth manufacturing industries tend to be relatively small value-added products that can efficiently be produced outside of major urban centers. Location near to major markets and suppliers is becoming less important for manufacturing industries compared to the past. Because new plants tend to be relatively small, the labor force limitations of rural counties is less of an issue. The rise of advanced information technologies enables plant managers to stay in touch with remote markets from almost any location.

The potential for an increased level of diversified manufacturing with a particular focus on new development in rural counties is again an indicator of increased future truck volumes on rural highways. The greatest increases in truck traffic will likely occur in rural counties adjacent to established metropolitan areas across the southern tier of the state. As many of the growing rural manufacturers sell to national and international markets, access to quality air transportation in rural counties will also become more important.

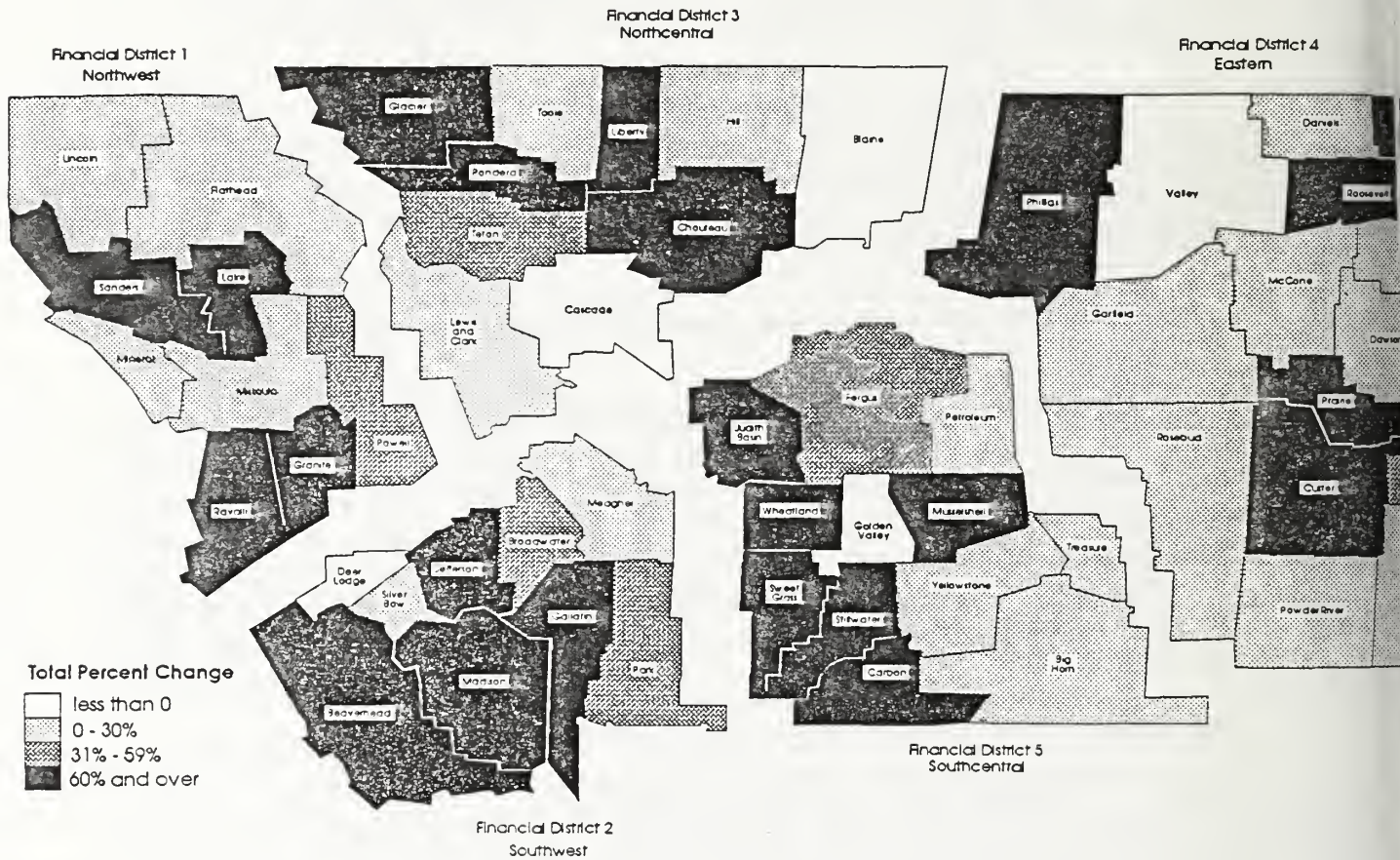
### 3. Montana's service economy

Montana's service sector has experienced rapid growth in recent years and is forecast to continue growing into the 21st century. The service sector includes personal/business services such as health care, data processing, and legal services; financial services such as banks and insurance companies as well as retail and wholesale trade. Wage, salary and business profits earnings from private service enterprises has grown steadily in Montana since the mid 1970s. Earnings from service-related businesses continued to grow even while Montana's timber, mining and agricultural industries staggered during the late 1970s and early 1980s.



## Exhibit II-15

### Manufacturing Wages, Salaries and Business Profits Projected Percent Change 1990 - 2010



Source: National Planning Association Data Services



**Exhibit II-14**  
**Rural Counties Expected to be Future Focus**  
**for New Manufacturing Development**

	<b>Manufacturing Earnings 1990</b>	<b>Manufacturing Earnings Projected 2010</b>	<b>Annual Percent Change 1990 - 2010</b>
Montana Total	561.8	728.8	1.49
Urban County Total	405.8	485.8	0.99
Cascade	23.2	5.7	-3.77
Flathead	109.8	135.8	1.18
Gallatin	33.3	59.4	3.92
Lewis & Clark	20.9	22.2	0.31
Missoula	113.4	141.2	1.23
Silver Bow	13.6	15.2	0.59
Yellowstone	91.6	106.3	0.80
Rural County Total	155.8	243	2.80

Source: National Planning Association Data Services

Long-term economic projections for Montana indicate a trend towards decentralization of manufacturing activity over the next twenty years. Manufacturing earnings in Montana's rural counties are expected to grow at an annual rate three times that of urban counties between 1990 and 2010, as shown in Exhibit II-15 and exhibit II-16. Consistent with general economic trends of the state, rural counties adjacent to urban areas typically are among the fastest growing manufacturing centers. However, a number of more isolated counties such as Sheridan, Custer, Phillips and Roosevelt Counties are projected to be among the fastest growing manufacturing counties over the next twenty years.

### Exhibit II-13 Montana Has Expanding Diversified Manufacturing Sector

Manufacturing Industry	Labor Earnings 1992 (millions)	Percent of Total Manufacturing Earnings 1992	Percent Earnings Growth 1990 - 1992
<i>Total Manufacturing</i>	730,994	100	27.43
Lumber and Wood Products	292,837	40.06	20.13
Manufactured Food Products	66,024	9.03	3.90
Printing and Publishing	59,051	8.08	37.76
Primary Metals	58,685	8.03	27.61
Petroleum and Coal Products	52,595	7.19	42.26
Paper Products	39,231	5.37	13.6
Miscellaneous Manufacturing	31,231	4.27	172.88
Stone, Clay and Glass	28,937	3.96	28.55
Chemical Products	21,870	2.99	21.98
Fabricated Metal Products	17,054	2.33	59.07
Machinery and Equipment	16,335	2.23	22.65
Apparel and Textile Products	13,200	1.81	61.72
Furniture and Fixtures	8,308	1.14	55.23
Instrument Products	7,779	1.06	130.42
Electrical Equipment	6,264	0.86	65.32
Motor Vehicles	5,180	0.71	67.04

Source: U.S. Bureau of Economic Analysis

While lumber and wood products will likely continue to be the largest manufacturing industry over the next twenty years, the data points to a trend towards increased diversification. Petroleum and coal products, furniture and fixtures, instrument products and apparel are examples of Montana's fastest growing manufacturing industries.

In general, Montana manufacturing activity is concentrated in urban centers. In 1990, Montana's seven major urban counties accounted for nearly three-quarters of the statewide manufacturing activity. Measured by 1990 annual earnings, Flathead and Missoula have the largest concentration of manufacturing activity, as shown in Exhibit II-14.

industry expect some reduction in overall wood products processing activity over the next twenty years. However, the decline in processing activity is not anticipated to be as great as the decline in timber availability. This prediction assumes a continued strong international economy and corresponding strong demand for wood products. As timber becomes more valuable, utilization of formerly unprofitable materials becomes profitable. A national trend towards more value-added local processing of available timber makes it possible to employ more people and higher wood products sales with a lower volume of raw logs. For example, dimension lumber that may have previously been exported to other states or countries for further processing is now more likely to be made into furniture or recreational equipment at the local level creating new employment and income opportunities.

Montana trends in wood products processing will also lead to changing transportation system demands. In particular, the trend towards increased value-added processing may place increased volumes of wood products on Montana's highways. A survey of newly established industries in the state of Washington found that producers of specialized value-added wood products are considerably more likely to utilize highway transportation to ship products than producers of saw-timber who are more likely to utilize rail transportation.

Industry trends also suggest a potential decentralization of timber processing activities. Specifically, reduced timber supplies in the west combined with potential increased supplies in the eastern half of the state provides incentive for relocation or development of processing facilities farther to the east than traditional processing centers. The site requirements of potential new value-added wood products manufacturers enable owners to choose locations outside of traditional wood manufacturing regions.

Overall, wood products industry trends suggest significant changes in longer-term transportation use. Most importantly is the potential shift from concentrated activity in the far western counties to locations in central and eastern Montana. Timber processing facilities are likely to be more dispersed reducing wood products volumes within the far western regions and increasing traffic volumes on highways in central and eastern Montana. Provided Montana follows the national trend towards more value-added wood processing, the reliance on highways for wood products shipments will increase while the reliance on the rail system will decrease.

#### **d. Diversified Manufacturing**

The U.S. Bureau of Economic Analysis estimates labor earning from manufacturing activities at nearly \$731 million dollars in 1992, as evident in Exhibit II-13. Lumber and wood products is the dominant Montana industry providing 40 percent of the total manufacturing earnings. The remainder represents a diversified group of manufacturers ranging from sugar beet processing to primary metals to petroleum refining.



The key factors influencing future Montana wood products production and timber shipments are:

- Much lower timber offerings from National Forests.
- Limited availability of timber on private industrial lands.
- The potential for expanded harvests from non-industrial private forest lands.
- A trend toward increased value-added processing of limited timber supplies.

The timber industry in the Northwestern and Rocky Mountain Regions of the United States is undergoing a major restructuring that will have implications for future transportation needs of the industry. Dramatically lower timber offerings from National Forests will influence both the future level of wood products processing and the geographic location of timber harvests. In the late 1980s, more than 510 million board feet per year were harvested from Montana's National Forests. According to the U.S. Forest Service, National Forest timber offerings will likely fall to well under 200 million board feet by the late 1990s.

Volumes of standing timber on private industrial lands simply are not adequate to make up for the shortfall caused by reduced supply from National Forests. Private non-industrialized timber lands are the wild card for Montana's future timber supply over the next twenty years. Recently, the harvests from non-industrial private timber lands has more than doubled compared to the late 1980s. Private land owners are responding to dramatically higher stumpage prices offered over the last two years. Higher stumpage prices are due to a limited timber supply combined with a strong national demand for lumber products. Provided the national economy remains strong and construction growth continues, it is reasonable to assume price incentives will remain to encourage increased timber sales from private non-industrialized timber lands.

Reduction in timber available from Montana's National Forests combined with a potential increase in timber harvested from private non-industrial timber lands has implications for the state's transportation system. Timber supply projections prepared by the University of Montana School of Forestry indicate that the total volume of Montana timber shipments will likely decline by at least 25 percent by the end of this decade. The state's National Forests are located primarily in the western regions of Montana. Private non-industrial timber lands tend to be located in the central and eastern regions of the state. Consequently, the anticipated supply shifts will focus future logging and associated transportation needs farther to the east than has been traditional in Montana.

The current industry trends also suggest potential changes in the volume and geographic location of timber processing activity. Most observers of the Montana forest products





**Exhibit II-11**  
**Earning from Mining Activity, 1993**

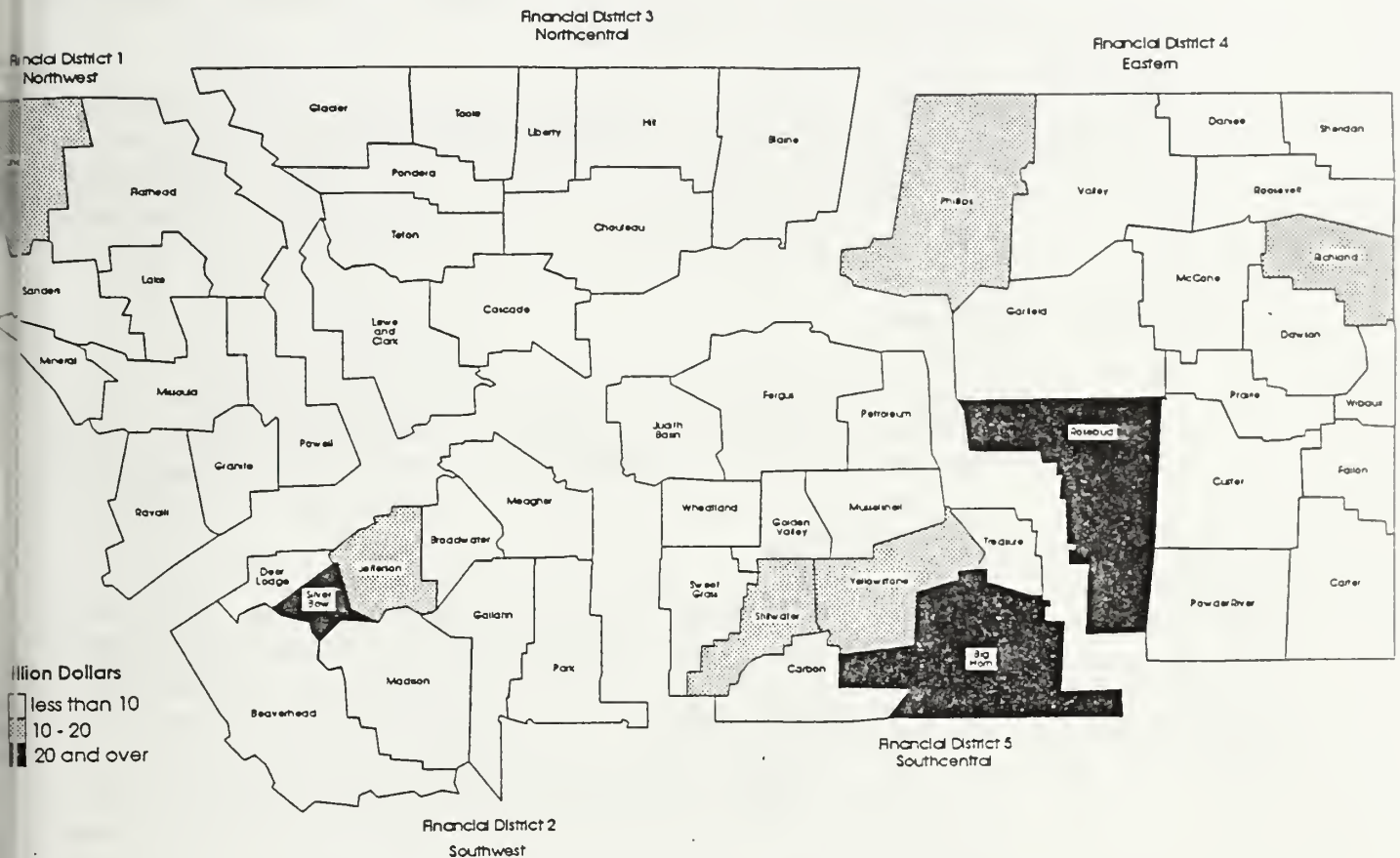
<b>MDT Financial District</b>	<b>Earnings From Mining Activity 1993 (thousands of dollars)</b>
Montana Total	\$250,100
Northwestern Region	28,600
Southwestern Region	65,300
Northcentral Region	17,200
Southcentral Region	17,300
Eastern Region	54,600

Overall, the potential for expanded mining activity in Montana is significant. Historic trends suggest that the rate of mining extraction for both non-fuel minerals and coal will likely go through significant swings over the next twenty years depending on changes in world markets. This potential suggests a special challenge for Montana transportation planners. Uncertainty over the duration of potential mining activity expansions makes it more difficult to plan for and justify major transportation system investments that may be needed to support increased volumes of mineral shipments. However, this problem is somewhat mitigated by recent economic diversification in Montana's primary mining communities. With increased diversification, major swings in mining activity are less likely to produce the boom and bust cycles witnessed during the 1970s and 1980s. As a result, long-term transportation needs in mining dependent areas will become more predictable.

**c. Wood Products**

Data compiled by the University of Montana's Bureau of Business and Economic Research indicates the 1993 sale value of Montana's wood and paper products was nearly \$1.4 billion. Wood products processing activity is concentrated heavily in the northwestern half of the state, as shown in Exhibit II-12.

## Exhibit II-10 Wages, Salaries and Business Income from Mining Activity by County, 1993



Source: National Planning Association Data Services

tractor-trailers rather than the traditional two axle farm truck. Not only are there more road miles being generated due to longer hauls from the field to the elevator, but the weight of the vehicles is increasing. Consequently, road damage saved on long-haul routes is being shifted onto short-haul secondary system roads.

Looking to the future, Montana's grain regions face two major freight transportation challenges. Firstly, maintaining an efficient rail system that is of growing importance to Montana grain farmers, and secondly maintaining the performance of the key secondary system farm to elevator routes utilized by Montana growers.

**b. Mining**

Mining is a second traditional mainstay of the Montana economy. In 1993, Montana mining industries generated over \$250 million in wages, salaries and business profits. Montana's largest current centers of mining activity are located across the southern tier of the state, as shown in Exhibit II-10 and Exhibit II-11.

Non-fuel mineral mining accounts for more than 80 percent of Montana's current activity. The non-fuel minerals industry includes several sectors: metal mining (gold, silver, platinum and copper) and nonmetal minerals such as sand and gravel. The value of non-fuel mineral production in Montana peaked at \$685 million in 1988 with higher metal prices. However, the value of production has fallen by 30 percent since then as metal prices have declined. The future of Montana's non-fuel mineral mining industries is closely linked to world metal prices. If metals prices should once again rise to mid-1980 levels, a resurgence in Montana's mining activity can be expected.

Coal mining also takes place in Montana. Approximately 40 million tons of coal are taken from Montana mines annually. However, the current rate of coal mining does not begin to tap the extensive reserves available throughout the state. Montana's coal reserves are greater by a considerable margin than any other U.S. state. Like non-fuel mining activity, coal mining is closely tied to world energy prices. A major increase in world oil and gas prices would likely lead to expanded coal mining activity in Montana.



**Exhibit II-9**  
**Agricultural Cash Receipts by Financial District, 1991**

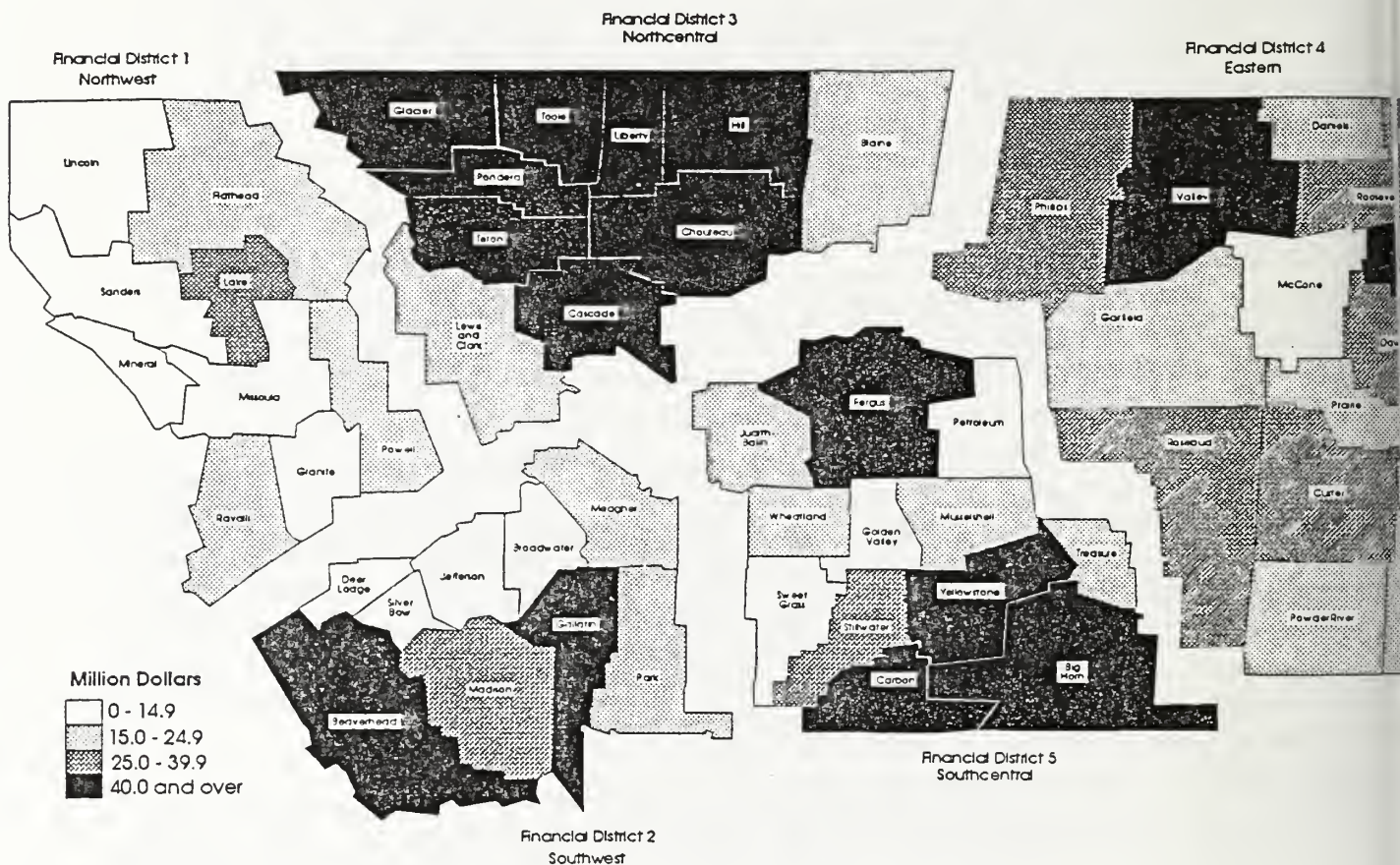
<b>MDT Financial District</b>	<b>Agriculture Cash Receipts 1991 (thousands of dollars)</b>
Montana Total	\$1,502,033
Northwestern Region	126,063
Southwestern Region	202,197
Northcentral Region	552,100
Southcentral Region	402,626
Eastern Region	438,128

Total cash receipts from crops and livestock in Montana have increased moderately over the past decade. Dr. Myles Watts, Professor of Agricultural Economics at Montana State University, forecasts agriculture will continue to be a major contributor to the Montana economy. However, a wide array of issues may affect the overall profitability of Montana agriculture. For example, crop and cattle prices are subject to wide variation as a result of changes in the world market. Such changes are difficult to forecast in advance.

Assuming past trends provide an accurate prognosis for the future, agricultural industries will continue to be a major user of the Montana transportation system. Due to the bulky nature of agricultural commodities, efficient rail transportation is particularly important. Ninety-two percent of Montana's wheat crop was shipped by rail in 1993. Rail's share of the Montana grain transport business has increased steadily since the early 1980s.

The dominance of rail as the mode of choice for Montana grain shipments translates into reduced road damage and potentially safer rural highways on long-haul grain transportation corridors. However, this advantage may be offset by new use of semi-trailer trucks for short-haul farm to elevator movements. To gain efficiencies in the rail transportation system, rail reloading and grain storage facilities have been consolidated into fewer locations. As a result of the longer haul from the field to the elevator system, many local farmers find it more efficient to utilize five axle

### Cash Receipts From Farm Marketings by County in 1991



Source: Montana Agricultural Statistics Service

A detailed look at the data indicates that a significant portion of future growth is likely to occur in rural areas that surround the city limits. During the early 1990s, population growth in surrounding rural areas exceeded the rate of growth within city boundaries in each of Montana's fastest growing urban centers.

Future settlement patterns will create transportation demands that will be difficult to serve by public transportation and that will impact capacity at the regional level. Urban population sprawl increases pressure on the capacity of the regional transportation system. Roads and highways connecting new residential centers with urban employment centers will receive increased traffic volumes that lead to new capacity concerns. Projected population trends indicate that transportation issues associated with increased volumes of urban commuters will be most prevalent in the two western and southcentral financial districts.

## **2. Montana's Traditional Economic Base**

Historically, Montana's economy was built on a foundation provided by agriculture, mining and wood products and other manufacturing. These industries will continue to generate transportation demands for the shipment of bulk commodities from throughout Montana to national and international markets. The basic industries and their transportation needs are discussed in turn.

### **a. Agriculture**

Montana agriculture generates about \$2 billion in annual cash receipts. U.S. Department of Agriculture statistics document that agriculture is an important component of the economy in nearly all Montana counties, as evident in Exhibit II-8. About 80 percent of the agricultural cash receipts are generated in the three MDT financial districts east of the Rocky Mountains. Among Montana's counties, Chouteau and Yellowstone generated the most agricultural receipts--\$135 million and \$127 million, respectively in 1992. Cattle, wheat and barley are Montana's three largest agricultural commodities.



Economic forecasts indicate a considerably slower business growth rate in the northcentral and northeastern regions of Montana. No significant new transportation demands are anticipated in these regions.

Future population growth is expected to continue recent trends and build around established urban centers, as shown in Exhibit II-7.

### Exhibit II-7 Population Growth in Rural Areas Surrounding Rapidly Growing Cities

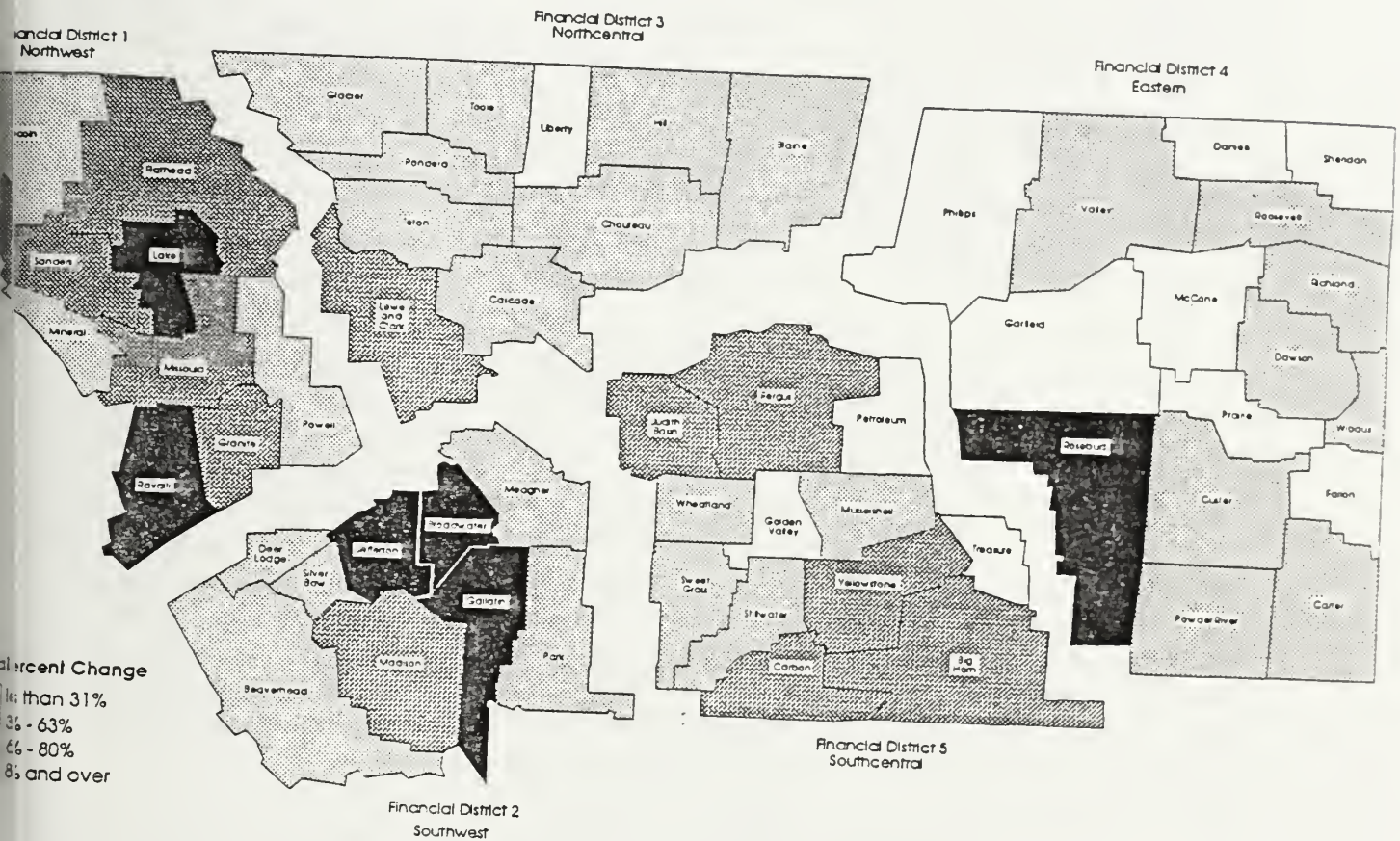
	Population 1980	Population 1990	Population 1992	Annual Percent Change 1980-90	Annual Percent Change 1990-92
<b>Cascade County</b>					
Great Falls City	56,725	55,097	56,628	-0.3	1.4
Rural Cascade County	23,971	22,594	22,640	-0.6	0.1
<b>Flathead County</b>					
Kallispell City	10,648	11,917	12,456	1.2	2.3
Rural Flathead County	41,318	47,301	50,401	1.5	3.0
<b>Gallatin County</b>					
Bozeman City	21,645	22,660	23,826	0.5	2.6
Rural Gallatin County	21,220	27,803	30,049	3.1	4.0
<b>Lewis &amp; Clark</b>					
Helena City	23,938	24,569	25,719	0.3	2.3
Rural Lewis & Clark	19,101	22,926	23,942	2.0	2.2
<b>Missoula County</b>					
Missoula City	33,388	42,918	44,522	2.9	1.9
Rural Missoula County	42,628	35,769	37,894	-1.6	3.0
<b>Silver Bow County</b>					
Butte City	37,205	33,336	33,555	-1.0	0.3
Rural Silver Bow County	887	605	573	-3.2	-2.6
<b>Yellowstone County</b>					
Billings City	66,798	81,151	84,011	2.2	1.8
Rural Yellowstone County	41,237	32,268	34,052	-2.2	2.8

Source: U.S. Bureau of Census



## Exhibit II-6

### Total Wages, Salaries and Business Profits Projected Percent Change 1990 -2010



Source: National Planning Association Data Services

### Exhibit II-5, Growth in Total Wages, Salaries and Business Profits by Financial District, 1990 - 2010

Financial District	Total Percent Change 1990 - 2010
Montana Average	63
Northwest District	72
Southwest District	79
Northcentral District	46
Southcentral District	65
Eastern District	52

In general, Montana's urban centers and their surrounding rural counties are expected to grow most rapidly. The urban areas tend to have the most diversified economies with a higher concentration of rapidly growing service-related businesses. In particular, the southwestern and northwestern regions of the state are well-positioned for future economic growth. These regions will likely benefit from both expanded tourism and established growth industries including health care, universities, business support services and other rapidly growing services. Future growth will build from established urban centers such as Bozeman (Gallatin County), Missoula (Missoula County) and Kalispell (Flathead County). The benefits of economic growth in these established urban centers are expected to spread out into the surrounding rural counties.

The region surrounding Montana's largest population center, Billings (Yellowstone County), also is anticipated to experience significant new economic growth over the next twenty years. Yellowstone, Big Horn, Carbon and Rosebud Counties each have projected total earnings growth rates in excess of the statewide average. To the north of Billings, significant economic growth is expected in Fergus and Judith Basin Counties. Like western regions of the state, tourism and service-related businesses will be a primary source of growth in the southcentral region. Expanded coal mining activity may also contribute to the region's future growth.



**Exhibit II-4**  
**Forecast Growth by Sector**  
**Wages, Salaries and Business Profits, 1990 to 2010**  
**(valued in 1987 dollars)**

Sector	Projected Income, 1990 (Millions of Dollars)	Average Annual Income, 2010	Growth Rate
Total, All Industries	\$6,756	\$11,003	3.15
Agriculture, Forestry and Mining	669	974	2.29
Construction	358	645	3.98
Manufacturing	561	729	1.49
Transportation/Utilities	654	934	2.14
Retail/Wholesale Trade	1,131	1,889	3.35
Private Services	1,983	3,810	4.60
Government Services	1,395	2,023	2.25

Source: National Planning Association Data Services

Private service industries such as health care, recreational activities, legal services, management consulting and computer support will lead Montana's growth into the next decade. Earnings in these industries are projected to double over the next twenty years. In contrast, the state's traditional basic industries in agriculture, forestry, mining, manufacturing and transportation are expected to grow at an annual pace of less than 2.3 percent between 1990 and 2010. As these service-related businesses continue to become a more dominant component of Montana's economy, transportation needs within the state will also change.

**d. Uneven growth**

The growing role of service-related businesses in the Montana economy is one broad economic trend that will influence future transportation needs. The geographic location of expected growth is an equally important consideration. Projected earnings from wages, salaries and business profits for each of Montana Department of Transportation's (MDT) five Financial Districts are compared in Exhibit II-6. The regional differences are highlighted in Exhibit II-7.

**b. Traditional economic base**

Agriculture and natural resource based industries, along with nonresident travel and federal government expenditures provide a stable economic base for the state of Montana. Individual industries such as agriculture and oil and gas have experienced significant swings in economic fortunes over the past twenty years. However, as a group, Montana's basic industries have consistently contributed labor earnings well over \$2 billion dollars annually between 1970 and 1993. TranPlan 21 addresses the future transportation needs of these traditional basic industries.

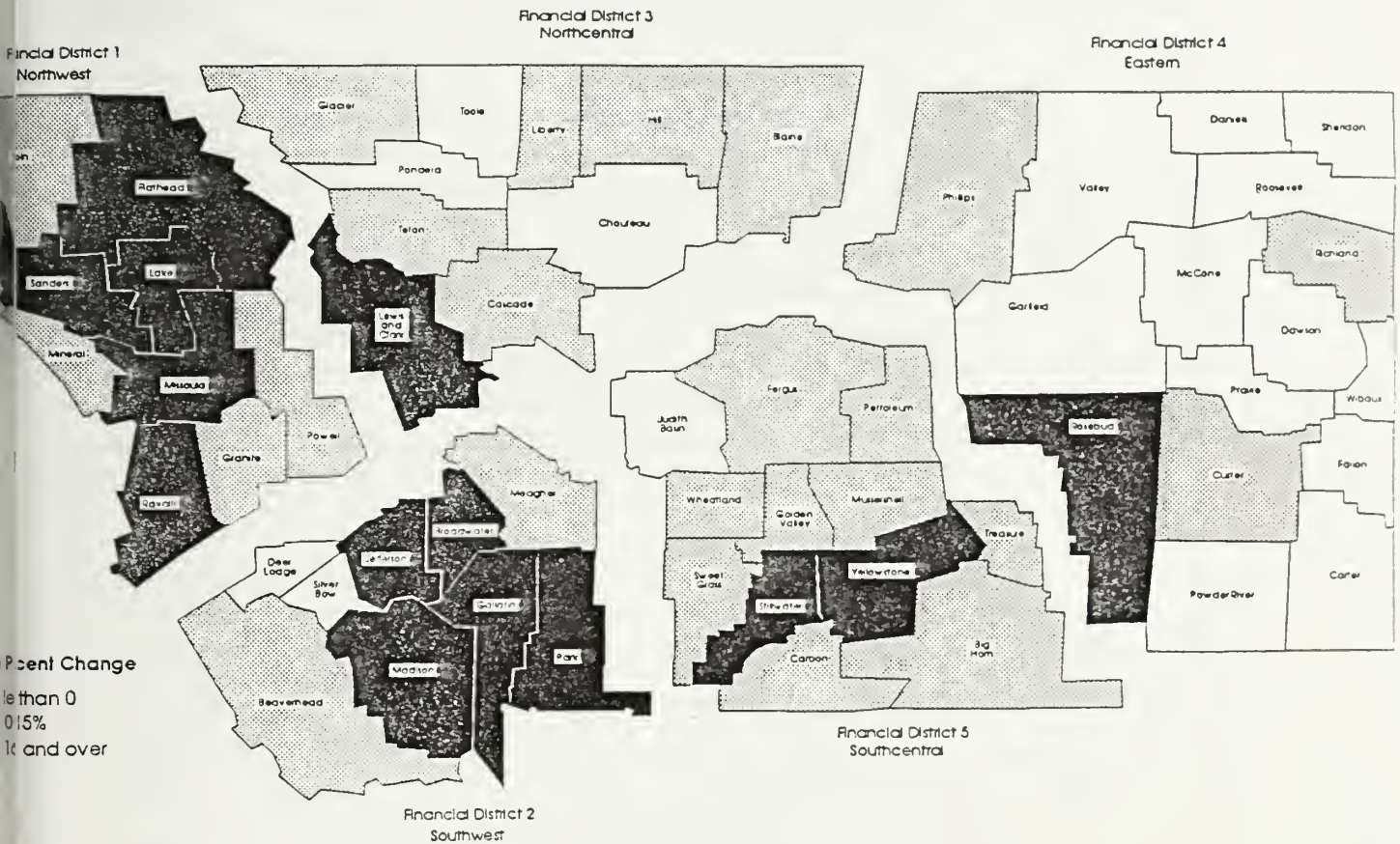
**c. Service sector growth**

Montana's economy has changed in recent years most notably through the growth of service industries and will continue to change, generating different transportation demands. Private service industries such as health care, recreational activities, legal services, and management consulting are among the fastest growing in Montana as well as in the nation as a whole. Earnings in these industries are projected to double over the next twenty years.

Service-related businesses generate different transportation demands than the traditional basic industries. For example, Montana's traditional basic industries of agriculture, mining and wood products rely heavily on the motor carrier and rail road industries to meet their transportation needs. However, new service businesses are more likely to utilize package delivery services, air transportation and electronic media to support their day-to-day business activities.



### Exhibit II-3 Population Growth by County, 1990 to 2010



provinces in North America. States and provinces to the east of the Rocky Mountains are generally growing more slowly. These population trends indicate that both Montana's U.S. and Canadian trading partners will tend to expand most rapidly from the west. Rapid growth in the western most states and provinces will also likely lead to an increased volume of freight traffic passing through Montana on route to and from other major trading areas. Particular growth is expected from the north as the North American Free Trade Agreement and the Canadian Free Trade Agreement provide a catalyst for increased Canadian and U.S. trade.

Overall, Montana's projected economic and population trends indicate a state with distinct regional differences in future transportation challenges. In the western and southcentral portion of the state there will be significant pressure to provide for the transportation needs of a growing number of service-related businesses as well as for an increasing number of urban commuters. Simply maintaining the quality of the existing transportation system may be challenging for the northcentral and eastern regions of Montana. A declining population base combined with a slow growing regional economy is indicative of a weakening local tax base. Regions with a weakening local tax base generally experience both reduced public and private sector investment in the local transportation system.

## Exhibit II-2 Population Growth of Western States, 1990 to 1993

Region/States	Population 1990 (Thousands)	Population 1993 (Thousands)	Percent Change 1990 - 1993
U. S. Average	248,710	257,903	3.7
Pacific Northwest States			
Washington	4,867	5,255	8.0
Oregon	2,842	3,032	6.7
Idaho	1,007	1,009	9.1
Rocky Mountain States			
Montana	799	839	5.0
Wyoming	454	470	3.5
Utah	1,723	1,860	5.0
Colorado	3,294	3,566	8.0
Upper Plains States			
North Dakota	639	635	-0.01
South Dakota	696	715	2.7
Minnesota	4,375	4,517	3.2
Canadian Average	26,838	28,191	5.04
Western Provinces			
British Columbia	3,191	3,456	8.3
Alberta	2,503	2,630	5.1
Saskatchewan	987	989	1.5
Manitoba	1,085	1,105	1.9

Source: U.S. Bureau of Census and Statistics Canada

To a large extent population growth in Montana's neighboring states and provinces mirrors population growth patterns within the state. Population in states and provinces to the west of Montana have been growing most rapidly during the early 1990s. In fact, Washington, Idaho, Utah, Colorado and British Columbia are among the fastest growing states and



years but continue to increase at a moderate pace (Montana Business Quarter, Spring 1994).

Long-term forecasts developed by National Planning Association Data Services and the Montana Department of Commerce indicate that moderate and stable economic growth will continue in Montana over the next twenty years. Statewide earning from wages, salaries and business profits are projected to grow at an annual average rate of 3.15 percent per year between 1990 and 2010. Significant employment and population growth is expected to accompany growth in income.

Montana's population is forecast to continue to grow at above the national rate through the 21st century. Exhibit II-1 shows the forecast population growth by Montana Department of Transportation financial district through 2010.

**Exhibit II-1**  
**Population Growth by MDT Financial District, 1990 to 2010**

<b>MDT Financial District</b>	<b>Annual Percent Change 1990 - 2010</b>
Montana Average	0.78
Northwestern Region	1.38
Southwestern Region	0.75
Northcentral Region	0.33
Southcentral Region	0.93
Eastern Region	-0.02

Source: National Planning Association Data Services

Montana's population has been growing at a faster pace than in neighboring states as shown by Exhibit II-2.



## **II. Economic, Environmental, and Social Considerations**



This section provides an analysis of the economic, environmental, and social considerations affecting the management and development of Montana's multimodal transportation system.

### **A. Economic and Demographic Considerations**

The demands for transportation in Montana are largely derived from Montana's population and employment characteristics. This section provides an analysis of the industry and population trends in Montana that will shape transportation demands into the 21st century. The analysis is based on the consideration of past trends, social and economic forecast data. Following are the key economic and social considerations that are addressed:

- Expected statewide economic and population growth.
- The outlook for Montana's traditional economic base.
- The rise of Montana's emerging service economy.
- Population trends affecting transportation system needs.

#### **1. Overview of economic and population change**

The key features of economic and population change that affect the long range transportation demands addressed in TranPlan 21 include: population and employment growth, the continued importance of Montana's basic industries, the growth of Montana's service sector, and the uneven geographic location of economic and population growth.

##### **a. Economic and population growth**

Montana's economy was among the fastest growing in the nation during the early 1990s. In 1992, the nonfarm labor income in Montana increased by 5.1 percent compared to 3 percent for the nation as a whole. Statewide growth is predicted to taper off somewhat over the next few

capabilities of the system as currently configured for meeting future demands are considered. The ability to establish achievable planning goals for meeting future travel demands is also assessed. This analysis is used to provide an informational basis for describing the key issues affecting the transportation system and the feasibility of public actions to address them.

The analysis considers: highways and bridges, public transportation, passenger rail, freight rail, air transportation, and pipelines. Pipelines are included because they provide a mode of transportation for shipping many commodities.

**Section IV. Financing TranPlan 21.** This section assesses the transportation funding programs available for implementing TranPlan 21. Current and forecast revenues are described and the element of the highway improvement program detailed. The key financial constraints that will affect the implementation of TranPlan 21 are described and the major financing issues that will arise over the next twenty years during the implementation of TranPlan 21 are identified.

## I. INTRODUCTION



Volume II Transportation System Analysis, is the second volume of TranPlan 21, Montana's statewide multimodal transportation plan. The volume reports the technical analysis that was undertaken as a basis for developing the policy goals and actions reported in Volume I. The volume is organized into the following sections.

### Section I. Economic, Environmental, and Social Considerations.

This section evaluates the social and economic trends affecting the demand for transportation in Montana. Recent economic and population trends are analyzed and forecasts for the next twenty years are provided. The forecasts used are the same as those used by other state agencies for planning purposes. While economic and population forecasts are subject to revision. The conclusions drawn from the forecasts are not likely to change markedly should Montana experience faster or slower growth than forecast.

The environmental conditions which are to be addressed in implementing TranPlan 21 and improvements to interagency coordination and cooperation to ensure environmental protections are describes. A list of all the sources of information on the environmental conditions that will affect transportation improvements is provided.

The values and priorities of Montanans regarding the future of the transportation system represent many of the social considerations addressed by TranPlan 21. Their values and priorities were determined through public meetings and a telephone survey. The results are documented in Volume IV Stakeholder and Citizen Issues and Priorities. They are presented in summarized in this section.

### Section II. Transportation System Designation.

This section designates the elements of Montana's multimodal transportation system that are addressed by the statewide planning process. The section includes the system designation criteria and applies these criteria to identify corridors, transfer facilities, passenger transportation services, and connectors.

### Section III. Transportation System Analysis.

This section evaluates current and forecasts future demands for the use of the different elements of Montana's transportation system. The conditions of the existing transportation system and the

# **TranPlan 21**

## **Volume III - TranPlan 21 Policy Papers**

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Economic Development Policy Paper

Intermodal Freight Policy Paper

Roadway System Performance (preservation and capacity) Policy Paper

Access Management and Land Use Policy Paper

Public Transportation Policy Paper

Bicycle and Pedestrian Transportation Policy Paper





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